

ACTIVITIES IN THE PUBLIC SCHOOL

By

MARGARET GUSTIN

ASSISTANT FIELD SUPERVISOR OF RURAL EDUCATION,
CONNECTICUT STATE BOARD OF EDUCATION
FORMERLY SUPERVISOR OF CARTERET (N.C.) COUNTY SCHOOLS

And

MARGARET L. HAYES

ASSISTANT PROFESSOR OF CHILD DEVELOPMENT,
NEW YORK STATE COLLEGE FOR TEACHERS (ALBANY)
FORMERLY SUPERVISOR OF CRAVEN (N.C.) COUNTY SCHOOLS



CHAPEL HILL

THE UNIVERSITY OF NORTH CAROLINA PRESS

N. K. PAUL & SONS,
BOOKSELLERS,
HATKHOLA, CALCUTTA.

COPYRIGHT, 1934, BY
THE UNIVERSITY OF NORTH CAROLINA PRESS

MANUFACTURED IN THE UNITED STATES OF AMERICA

TO

HATTIE S. PARROTT

MEMBER OF THE STATE DEPARTMENT OF EDUCATION,
WHO HAS PLAYED A VITAL PART IN PROVIDING EDU-
CATIONAL OPPORTUNITIES FOR THE CHILDREN IN THE
PUBLIC SCHOOLS OF NORTH CAROLINA

PREFACE

IN RECENT YEARS, as activity work has become a recognized part of the school program, educators have encountered many problems and a definite need has arisen for materials that would be useful in organizing and guiding activity programs. The procedures described in this book have been organized to meet this need.

Behind this very practical record of experience lies a realm of educational theory which the authors have assumed rather than discussed. Those who are interested in this background of theory and controversy are referred to *The Twenty-Third Yearbook of the National Society for the Study of Education*, Part II, which is devoted to this subject. Here will be found an historical sketch showing that "learning by doing" is perhaps as old as thought itself and that it has been skillfully employed for many generations by gifted teachers who never heard of an activity program. Here will be found attempts to define the movement, with its many differing aspects and implications.

The authors of the present study realize the difficulties and ambiguities involved in the use of the term "activity." It is, however, the only name at present available to designate an educational emphasis which has already proved of sufficient importance to be called a movement and of sufficient vitality to have aroused both lively attack and spirited defense. The authors interpret the term "activity" broadly, believing that the child sitting absorbed in a book to which his interests and needs have led him is just as active (in an educational sense) as the child who is making the rafters

ring with hammer and saw. The important thing, in both cases, is that the activity shall *seem to the child to be self-initiated*, that it shall have behind it the force of his own interests, his own developing personality; that it shall not be a lesson imposed upon him by external powers, a lesson for which he feels no immediate need and in which he has little interest. This means having the child work for his own development, not, as it sometimes seems, against it. It means having him seek knowledge, not resist it. The central fact, then, about the activity movement would appear to be this shift in emphasis from the teaching of subject-matter, in and for itself, to the developing of the child's total personality. Subject-matter is no less vital, but it is regarded as a means to an end. The child is pursuing an idea, and he takes the necessary information in his stride. Ultimately he will acquire much the same knowledge as under a strict, disciplinary procedure, but the whole motivation, as far as he is concerned, has changed. The part that the teacher must and should play in all this—suggesting (both directly and indirectly), guiding tactfully and unobtrusively, creating a favorable environment for the developing of personality, helping the child to sift out his valuable interests from those that are less valuable, aiding him to measure his own attainment, and seeing to it that he does not miss those skills that he will need throughout his life—all this is fully recognized in the following pages.

While the present study is intended mainly as a practical guide, the authors hope that it may take its place as pertinent data looking toward an ultimate solution of some of the problems involved in the activity movement.

The materials came from actual classroom situations in Carteret and Craven counties, North Carolina. Schools participating in this program ranged from those having only

one teacher to consolidated schools having as many as eleven elementary teachers. Activity programs were organized in these two counties according to the procedures given here. The materials were made available to the teachers by means of instructional letters, by individual conferences, and by group conferences which were held with teachers and principals. This book gives a report of some of the classroom work which developed under the supervision of the authors. It is reported as it actually happened and there is no attempt to evaluate all of it.

Grateful acknowledgments are made to the people whose assistance made this book possible. Appreciation is due the teachers of Carteret and Craven counties. It would have been impossible to carry on this program without their fine professional spirit and experimental attitude. The county superintendents and boards of education allowed freedom for trying out procedures. The authors are indebted to Superintendent J. H. Workman for the Carteret County pictures and to Dr. D. E. Ford for the Craven County pictures. For reading the manuscript and rendering valuable criticisms acknowledgments are made to Miss Sallie B. Marks, Associate Professor of Education, in the University of North Carolina; Miss Nora Beust, Instructor in Library Science, in the University of North Carolina; Miss Ida E. Seidel, Industrial Arts Instructor, Grand Rapids, Michigan; Miss Ruth Owen, Supervisor of Elementary Schools, New Bern, North Carolina; and Miss Anne Holdford, Supervisor of Wake County Schools, Raleigh, North Carolina.

INTRODUCTION

By FANNIE W. DUNN

*Associate Professor of Education, Teachers College,
Columbia University*

OF THE numerous books which in recent years have described and analyzed the modern educational process, variously referred to as projects, activities, or units, most have emanated from privileged schools, expensively equipped, attended by children from well-to-do homes, with highly qualified teachers, long school terms and small classes. Most, too, have had the background of the great city, its experiences, its resources and its mode of life. It is not, however, in such an environment that the great body of the elementary school enrollment is found, but in relatively small cities, in villages, on farms, in homes of every social and economic level, in public rather than private schools, in classrooms frequently crowded, moderately or meagerly equipped, in schools many of which are open eight months or less each year and are staffed by teachers of only average training and background.

This book is, therefore, heartening, in that it represents the application of approved educational theory and practice in average or below average public school situations. The two counties in which the activities it describes were carried out, have a combined population of fewer than fifty thousand, of whom less than twenty thousand live in towns or villages over twenty-five hundred in size. The school children come from typical rural and small-town homes to

schools with usually no more than seven teachers in the elementary grades, without special teachers or such community resources as museums or libraries. Terms and expenditure for education are below national averages. In one respect, and perhaps in that one only, the situation in which the activities described in this book were developed was notably superior, namely, a high quality of supervisory leadership in the elementary schools. Such leadership brought out the best in the teachers, encouraged them to venture into new fields, aided them in successful prosecution of these ventures, and set free creativeness.

The book is, however, not only an assurance of the possibility of a modern educational program in spite of limited educational provision, and a valuable source of suggestion for supervisors who would develop similar programs; it is also a guide for teachers who, lacking supervisory guidance or assistance, desire to utilize new materials and methods of instruction. For such teachers it affords help at every step of the way—making a beginning, organizing the school-room and the children's day, enlisting coöperation and aid of parents, selecting problems and projects, and developing about them an integrated body of activities and experiences involving practically every school subject. With its guidance, no teacher who desires to move forward toward active vital learning as an ideal for her classroom should hesitate longer to do so.

TABLE OF CONTENTS

PREFACE	PAGE vii
INTRODUCTION BY FANNIE W. DUNN	xi

PART I

THE ORGANIZATION AND USE OF AN ACTIVITY PROGRAM

CHAPTER

I. LAUNCHING AN ACTIVITY PROGRAM	19
Definition of Activity Work—Teacher Attitude—Community Attitude—Preliminary Training of the Teacher—Setting Up the Situation—Arrangement of the Daily Program—Evaluating the Program—Special Points for the Supervisor—Summary.	
II. THE ORGANIZATION AND USE OF A READING CENTER	27
Definition—Location—Equipment—How to Secure Equipment—The Use and Care of a Reading Center—Bulletin Boards—Standards for Evaluating the Center—Outcomes—Summary—Bibliography.	
III. THE ORGANIZATION AND USE OF A SCIENCE CENTER	38
Definition—Location—Equipment—How to Secure Equipment—The Use and Care of a Science Center—Standards for Evaluating the Center—Outcomes—Summary—Bibliography.	

CHAPTER	PAGE
IV. THE ORGANIZATION AND USE OF AN ART CENTER	51
Definition—Location—Equipment—How to Secure Equipment—Creative Art Functioning—Appreciative Art Functioning—Standards for Art in the Classroom—Outcomes—Summary—Bibliography.	
V. THE DAILY PROGRAM	66
Organization and Functioning—A Suggested Program for the First Grade—A Suggested Program for Grammar Grades—Standards for Evaluating the Daily Program—Outcomes—Summary—Bibliography.	
VI. THE CURRICULUM	83
Definition—Historical Development of the Curriculum—Adapting a Course of Study—The Curriculum for an Activity Program, by Wilson S. Dakin—Evaluating Pupil Progress—Summary—Bibliography.	
VII. CONTACTS BETWEEN HOME AND SCHOOL . . .	94
A School Day for Parents and Pre-School Children—Preparation—Program—The Pre-School Clinic—Standards for Evaluating the Visiting Day—A Program for Parents—Unit Programs—The Parent Study-Group—School Publications—Informal Contacts—Summary.	

PART II

LARGE UNITS OF WORK

VIII. GUIDING THE DEVELOPMENT OF LARGE UNITS .	107
Definition—Initiating a Unit of Work—Carry-	

	ing On the Unit of Work—Evaluation of the Large Unit—Outcomes—Summary.	
IX.	LARGE UNITS OF WORK FOR THE FIRST GRADE . A Study of Animals—The Mid-Morning Lunch—Building a House—Bibliography.	113
X.	LARGE UNITS OF WORK FOR THE SECOND GRADE Growing Flowers—A Store—A Science Collection—Bibliography.	129
XI.	LARGE UNITS OF WORK FOR THE THIRD GRADE . Indian Life—Life in Holland—Birds—Bibliography.	143
XII.	LARGE UNITS OF WORK FOR THE FOURTH GRADE Homes in Many Climates—Transportation—School Attendance—Bibliography.	157
XIII.	LARGE UNITS OF WORK FOR THE FIFTH GRADE . A Study of Aviation—Pottery of the Nations—A Study of Cloth—Bibliography.	169
XIV.	LARGE UNITS OF WORK FOR THE SIXTH GRADE . Beautifying the Classroom—A School Garden—How the Race Has Put Itself on Record—Bibliography.	185
XV.	LARGE UNITS OF WORK FOR THE SEVENTH GRADE Our Native Trees—A School Newspaper—A Study of Boats—Bibliography.	199
XVI.	LARGE UNITS OF WORK FOR THE EIGHTH GRADE Earning a Living in Our County—A School Bank—A School Museum—Bibliography.	213

PART III

OUTCOMES OF AN ACTIVITY PROGRAM

CHAPTER		PAGE
XVII.	GENERAL OUTCOMES	229
	Outcomes—Reading and English—Arithmetic —Social Science—Natural Science—Art— Music and Physical Education—Provision for Individual Differences—Growth of the Teacher —Acquisition of Valuable Equipment—In- creased Interest of Patrons—Summary.	
XVIII.	CASE STUDIES OF INDIVIDUAL CHILDREN . . .	249
	Case A— Case B— Case C— Case D— Case E— Case F— Bibliography.	

APPENDIX

I.	A SUGGESTED LIST OF EQUIPMENT FOR CARRYING ON AN ACTIVITY PROGRAM	263
II.	TYPES OF STORIES FROM A FIRST-GRADE ACTIVITY READING CHART	266
III.	A CONFERENCE ON ACTIVITY WORK	271
IV.	CRITERIA FOR PURPOSEFUL TEACHING IN TERMS OF CHILD ACTIVITY	280
	Prepared by Mabel E. Simpson, Director of Elementary Grades and Kindergartens, Roches- ter, New York.	
V.	RECORD FORMS	283
VI.	GENERAL BIBLIOGRAPHY	286
	INDEX	289

LIST OF ILLUSTRATIONS

- A Contrast in Educational Method; An Example of
the Creative Art of Third and Fourth-Grade Chil-
dren; Reading and Science Centers Made by First-
Grade Children

Frontispiece

	FACING PAGE
Children Using Their Reading Center	30
A Reading Center and a Filing Cabinet	30
Where the Records of the Race May Be Studied	31
A Reading Center in a Crowded Schoolroom	31
Labeling and Listing New Specimens	40
A First-Hand Knowledge of Nature	40
A First-Grade Science Center	41
A Grammar-Grade Science Center	41
Primary Children Modeling and Painting Pottery	54
Working in the Art Center	54
A Rabbit Poses for His Picture	55
An Art Center in the Third Grade	55
The Mid-Morning Lunch	72
Resting after the Noon Hour	72
Art, Weaving, and Reading Function in the Daily Pro- gram	73
Working with Tools is a Vital Part of the Daily Pro- gram	73
Pre-School Children Enjoying Visiting Day	96
Pre-School Children Having Their Pictures Taken	96
First-Grade Children Enjoying the Fruits of Their Labors	97
First-Grade Children Completing a House	97

First-Grade Children Caring for Their Pets . . .	114
First-Grade Children Sewing and Weaving . . .	115
A Hen Project in the First Grade . . .	115
Serving the Mid-Morning Lunch . . .	120
Cleaning Up after the Mid-Morning Lunch . . .	120
First-Grade Children Completing a House . . .	121
Primary Pupils at Work . . .	121
The Rose Red Café . . .	134
An Aquarium in a Second-Grade Room . . .	134
A Second-Grade Rhythm Band . . .	135
Activities Centering Around a Home Unit . . .	135
An Indian Costume, Pottery, and Bow and Arrow . .	144
Eating Out of Doors, Indian Fashion . . .	144
Some Results of an Indian Study in the Grammar Grades of a Two-Teacher School on an Island . .	145
An Indian Project in the Third Grade . . .	145
A Dutch Frieze Made in the Second Grade . . .	148
A Frieze Made by Third-Grade Children . . .	148
A Dutch Village, an Outgrowth of a Large Unit of Work on Holland . . .	149
A Printing Center in the Third Grade . . .	149
Costumes, Fans, and Parasols Made While Studying Japan . . .	160
Materials Collected by Third and Fourth-Grade Chil- dren While Studying Japan . . .	160
A Study of Transportation . . .	161
Boys Using the Potter's Wheel Which They Have Made . . .	174
Pottery Made by Fifth-Grade Pupils . . .	174
A Study of Cloth . . .	175
A Boy's Interpretation of Cotton Cultivation . . .	175
Wall Hangings That Add to the Attractiveness of Both School and Home . . .	188

LIST OF ILLUSTRATIONS

xix

FACING PAGE

Studying About Records in a Reading Center . . .	188
Lincoln's Cabin Made by Sixth-Grade Boys . . .	189
A School Garden	189
A Science Center in Grades Six and Seven . . .	202
A Coast Scene in Carteret County	203
A Seventh-Grade Frieze Showing the Development of Boats	203
A School Bank Made and Used by Seventh-Grade Pupils	220
A Science Collection That Became a School Museum	220
Bird Houses Made by Eighth-Grade Boys . . .	221
Learning Habits of Neatness and Cleanliness . .	240
Where Teaching Science Is No Problem . . .	240
Rugs Hooked, Woven, Punched, Knitted, Braided .	241
A Collection of Pottery Made by Fifth-Grade Pupils	241
A County May Day Festival	244
Teachers Enjoy an Excursion to Cape Lookout . .	245

PART I
THE ORGANIZATION AND USE
OF AN ACTIVITY PROGRAM

CHAPTER I

LAUNCHING AN ACTIVITY PROGRAM

DEFINITION OF ACTIVITY WORK

(INFORMAL ACTIVITY work is that type of work which provides the child with varied, interesting, and worth-while activities, by participating in which he grows in the acquisition of certain desirable learnings. By desirable learnings are meant those knowledges, skills, abilities, and appreciations that will enable him to adjust himself to present and future environments. These learnings are social, emotional, and physical, as well as mental. Many people feel that activity work consists in having the child do nothing except what he wishes to do and that the usual result is a great deal of noisy nailing, hammering, and sawing. Muscular activity is an important phase of the work, particularly in primary grades, where coördination needs to be developed, but it is not essential in the development of some very effective large units of work. This is especially true in the grammar grades. As will be seen by means of materials presented in this book, activity work requires careful planning and involves many varied activities.

Teaching through informal activity programs is well established, and the educational principles underlying it are well known. At the present time, the chief problems confronting the teacher are not those of theory, but of actual classroom procedure. The materials in this book, therefore, have been assembled for the purpose of helping the teacher meet the practical problems involved in carrying out an activity program.

TEACHER ATTITUDE

The teacher who wishes to organize her classroom on an activity basis should first make sure of her own genuine desire for this type of experience and of her belief in it. She should believe that an activity program gives better opportunities for the development of the total personality of the child in relation to his environment and, in addition, provides opportunities for growth in subject-matter at least equal to those provided by the ordinary type of formal teaching. This will include the development of such qualities as originality, coöperation, ability to follow as well as to lead, persistence in worth-while tasks, habits of facing reality and accepting responsibility, and proper appreciation of the opportunities offered by society.

COMMUNITY ATTITUDE

One of the essential factors in setting up an activity program is a sympathetic attitude on the part of school patrons. A teacher who is sure of the confidence of the community may usually proceed as fast as she wishes without any likelihood of opposition. A teacher who is new in the school system should proceed more slowly, being careful always to hold the confidence and sympathetic coöperation of the principal and the school patrons. She may introduce new ideas so gradually that they will not be thought of as revolutionary changes. As satisfactory results are achieved, enthusiasm should grow among those connected with an activity program. Talks at parent-teacher and faculty meetings usually help to build favorable attitudes. This is a good time to show and explain pictures of activity work from various schools and to display work done by children in an activity program. Visits made by parents and teachers to classrooms where successful programs are being conducted are

usually most effective. The newspaper write-up is another valuable force that can be used. Also in the daily contacts between the teacher and her community the spoken word has tremendous power. In the final analysis, the personality of the teacher is the most important single factor in winning the support of the community.

PRELIMINARY TRAINING OF THE TEACHER

When a teacher has made up her mind to attempt an activity program, her next step should be to avail herself of every opportunity to secure preliminary training. Perhaps the most important means of training are courses in the methods and materials of progressive education, the reading of professional books and magazines, conferences with other teachers, and observations in classrooms where activity programs are being successfully conducted. The teacher is strongly advised to read books on theory first. After reading these she will need books on special phases of the work, such as art, crafts, science, and music. The Appendix of this book contains a bibliography for her use, and books on special phases are listed in the following chapters. In addition to her professional preparation, she must study her environment in order that she may be aware of the physical, industrial, and social conditions that are influencing the lives of her pupils. Both group and individual conferences with other teachers are valuable. Illustrative materials for group conferences are given in the Appendix. Observations in classrooms should be carefully planned and evaluated. A blank used for this purpose is included in the Appendix.

SETTING UP THE SITUATION

The next step is to set up the situation. Certain centers of interest should be provided in the classroom, or near by,

where the children will feel free to use the materials either for a definite purpose or for the joy of experimenting. By "center of interest" is meant a collection of materials that stimulate the children to begin activities of various kinds. Examples of centers of interest are: (1) a collection of reading materials; (2) art materials such as those used in painting, drawing, clay work, sewing, weaving, art appreciation, and building; (3) science and history collections; and (4) musical instruments and other music materials. Detailed instructions for the organization and use of the most important of these centers are given in the chapters immediately following.

A small amount of equipment is sufficient to begin the program; more may be added as needs arise. For the convenience of the teacher, a full list of materials for use in activity work is included in the Appendix. However, the teacher should bear in mind that it is not always the amount and quality of purchased equipment that determine the success of an activity program; the resources of the community should be explored and all possible use made of local materials.

ARRANGEMENT OF THE DAILY PROGRAM

On the day she wishes to begin, the teacher will have ready in her classroom several centers of interest. She will be sure to have materials sufficient to interest the entire group but varied enough so that different groups of children may be working at the same time, though not necessarily on the same activity. Her program for the day will be arranged to permit the children to use these materials in many ways. Some suggested programs are described in Chapter V. The teacher should always be on the watch for children's interests and should center their activities around their suggestions. Every effort should be made to improve

the quality of their work. This can be done by pupil reports at conference period, constructive criticisms by pupils and teacher, and display and evaluation of pupils' work.

The teacher may decide that a modified program suits her situation best. In this case she makes no drastic changes in her techniques of teaching, but starts with a daily activity period of twenty minutes or more, during which the children are allowed to engage freely in activities that interest them. Reading, science, and art are desirable centers for this type of approach. Other centers of interest may appear and disappear as the needs and interests of the class change with the units of work being carried on.

An exchange of visits and materials among groups in different classrooms stimulates enthusiasm for the work and allows teachers to help each other with the problems that are constantly arising. Teachers' conferences are also useful in this way. The meetings should serve as clearing houses for problems and provide opportunities for individual contributions. A description of such a conference is given in the Appendix.

EVALUATING THE PROGRAM

Each teacher will need to check the effectiveness of her program. Some informal notes made about each child are valuable records for the teacher. Perhaps John's second-year record shows that he read well but did not work well with other children at the beginning of the year. By the middle of the year it shows that he worked well with the group while building a store and often helped some of the other children read stories about their activities. Mary's first year record may show that she has changed from a shy and unhappy child to a happy child who has gained in poise and participates freely in the group activities. Classroom and individual notebooks kept by children are often the

most valuable type of record. Still other checks on the effectiveness of the program are the accomplishments of the pupils as measured by articles of work completed. The activity period is often the logical place for drill, since the children are at that time interested in something and want to get it. If the teacher will keep records of her large units of work, it will increase her powers of evaluation and stimulate her to read more and to attempt new activities. The teacher's accurate unit records, along with collections of the children's work, are concrete evidences of pupil growth. An outline is given in the Appendix to be used for unit records. Part II of this book contains several units written up by the outline given. A collection of such units is very useful; placed on file they are of value both as references for materials and procedures and as helps to prevent undesirable repetition of work. As a further check on her work it is well for the teacher to have conferences with the supervisor and the principal following their observations in her classroom. The purpose of these conferences is to evaluate the work done and to work out ideas for growth and improvement. Conferences of this kind should encourage and stimulate the teacher.

SPECIAL POINTS FOR THE SUPERVISOR

There are some special points for the supervisor to consider. The steps she takes are, of course, practically the same as those outlined above for the teacher. Her first problem is that of creating a favorable attitude on the part of the teacher and the principal. It is well to start the first year in a few classrooms as experimental centers. As the work progresses it may be started in other classrooms also. The materials in the following chapters are designed as a guide for the teacher and the supervisor as the work proceeds from its initial stages. The supervisor should encourage the

teacher, and see that she thoroughly understands each phase of the work before passing to the next. It will be wise for the supervisor to see that the teacher has the opportunity to visit other classrooms where activity work is being done. Another important function of the supervisor is the classroom visit and conference. This provides opportunity to evaluate the work already done, stimulate and encourage the teacher, and make suggestions for furthering the work. The supervisor will seize every opportunity to put the teacher in touch with new and effective materials of instruction. Also, the supervisor should arrange for one or more conferences where teachers can exchange ideas and receive help from outside sources. One very useful feature of a conference of this kind is an exhibit of instructional materials effective in promoting this type of work. When an unusually good unit of work is developed in a classroom, the supervisor may encourage the teacher to write an account for an educational magazine, or she may see that other means are provided for sharing the ideas and accomplishments. This may be done through newspaper accounts, exhibits, and special programs for teachers, parents, children, and board members. The supervisor may measure her own work by the results of activity work in the classroom. These are fully discussed in the chapter on outcomes.

SUMMARY

This chapter has been concerned with giving a unified idea of an activity program in order that the teacher may gain a conception of the whole program before being confronted by the problems connected with carrying out the different phases of the work. The various items involved in the organization and use of an activity program such as proper attitude on the part of the teacher and school patrons,

preliminary training for the teacher, setting up the situation, arrangement of the daily program, putting the program into action, and checks, have been briefly considered. Part I of this book has been devoted to the detailed procedures necessary for the organization and use of an activity program in all its phases. The teacher should keep always before her the idea of an activity program as a definite whole, designed to develop the social, emotional, mental, and physical nature of the child.

CHAPTER II

THE ORGANIZATION AND USE OF A READING CENTER

IN CHAPTER I the organization of certain centers of interest was suggested. This chapter and the two following are concerned with the detailed procedures involved in the organization and use of the most important of these centers.

The suggestions have been made as full as possible in order to fit the varying situations found in different classrooms. Each teacher will need to study the procedures outlined and adapt these to the situation within her own classroom. The reading center is considered first because of its fundamental importance in the classroom, and also because of the fact that it is practical for any teacher in any school to have a reading center.

DEFINITION

A reading center is the place in the classroom where a good variety of suitable reading material is arranged for the pupils to use freely.

LOCATION

The location of a reading center depends upon several factors. Among these are the size of the room, the number of children, the type of furniture, and the position of windows. When deciding upon the location of a reading center, the most important points for the teacher to consider are proper light for reading and attractiveness to the children.

A corner is usually best, but, with proper attention to the

considerations mentioned above, the center of the room may be used. If there is sufficient space, the bookcases and tables may be arranged as one unit, which will look like an attractive little room.

THE EQUIPMENT OF A READING CENTER

The type of equipment often determines the success or failure of a reading center. A table, some chairs, and one or more bookcases are usually necessary. However, if the room is crowded, a neat hanging bookshelf may be made an attractive and useful addition. Care must be taken that all bookshelves are within easy reach of the children. Slanting shelves have been found the best to display books effectively.

Books with as great a variety of content as possible should be selected. Some of these should be for pleasure, some should be of the work type, and some should be for reference. Books placed on the shelves of any particular room should vary in difficulty, in order to provide for individual reading abilities. In selecting books it is also important to secure readable type, attractive illustrations, and good workmanship. Volumes other than library books may be placed on the shelves. These may include supplementary textbooks, acceptable advertising pamphlets, informational catalogs such as those from reliable seed houses, and books containing the children's own work. The latter are of two kinds: those made by the teacher and those made by the pupils. The teacher may type or write the children's stories and make collections of them in booklets or paste them on cards. Printed stories and pictures from magazines may be successfully arranged in the same manner. A book of this kind, made and illustrated by an individual child or by the class as a whole, is often a first and powerful incentive to reading.

Poems attractively lettered and illustrated are valuable

additions to the reading center. They may be original or chosen from the abundance of good poems written for children. Those of A. A. Milne, James Tippet, Robert Louis Stevenson, and Walter de la Mare are usually very popular. The illustrations may be cut from magazines or made by the children. Usually the greatest value comes from those made by the children.

✓ Magazines and newspapers should be a part of the reading center. These are often made by the pupils themselves and issued as a simple bulletin of a single sheet. Printed newspapers such as those of town, county, and state, as well as those published especially for schools, will prove very helpful. In the field of children's periodicals there are many attractive and worth-while magazines from which to choose.

The attractiveness of the reading center has much to do with the amount of reading done by the children. Some accessories that increase its appeal to them are the following: flowers arranged in vases and hanging baskets, statuary, pottery, pictures, wall hangings, rugs, cushions, book-ends, and covers for the backs of chairs. Local materials may often be used to develop a feeling of appreciation on the part of the children for geographical, historical, and artistic values in their environment. This is illustrated by the use of seashells and interesting rocks as book-ends. Some of the accessories should be made by the children themselves, since this adds a social value.

HOW TO SECURE THE EQUIPMENT

The most serious problem that confronts the teacher is often that of securing proper equipment. Chairs, tables, and bookcases may be made by the children or the janitor. Orange crates are particularly suitable for chairs and settees, and scrap-lumber is useful for making benches. Chairs, settees, and benches may be made more comfortable and

attractive by upholstering them with cretonne, gingham, or burlap, or by making covers of these materials. Grammar-grade children may make cushions, rugs, footstools, book-ends, wall hangings, bottoms for old chairs, and so on. The suggestion has already been made that the teacher and pupils make some of the books and pamphlets for the reading center. The materials for making the equipment may usually be secured at little or no expense. In the reading center a special place should be provided where each child may deposit his creative work, such as stories, poems, and pictures. Books may be lent by children, or donated by patrons, subject to the approval of the teacher, who should retain the privilege of accepting only suitable material.

THE USE AND CARE OF A READING CENTER

The proper use of a reading center is important on account of its value in building desirable reading habits in children. Efforts should constantly be made to encourage pupils to read. Books may be talked about during the morning exercises or in English discussions, and special attention may be called to certain books at other times. A wise plan is followed by the teacher who occasionally reads aloud from a book just long enough to arouse such interest in her pupils as will cause them to finish the book for themselves. Besides reading for information and pleasure, the children may be encouraged to turn through the pages of books for the pleasure of handling them and looking at the pictures. This is especially good for beginners. At any time during the day, pupils should feel free to use their reading center if they are not engaged in other group activities.

The care of the reading center is important from an economic viewpoint, but it is more important on account of its value in building right habits. Through proper guidance the

children will grow into a sense of responsibility for the care of the library. This may be brought about by class conferences concerning the reading center. These conferences may often include examination of books, evaluation of their condition, and plans for their repair and future use. Time given to teaching children the use of the Table of Contents and the Index and the proper care of books, especially the right way to open new books, is profitably spent. Each child should be responsible for the care of the reading center for at least one week. This includes keeping it clean and in order, keeping fresh flowers properly arranged, and seeing that books are cleaned, re-covered, and re-bound when necessary. Here let us caution the teacher that reading centers should not be used as places to store supplementary readers or teaching equipment.

It is very important that children be helped to make a definite set of library rules and encouraged to follow them. These may be posted on a bulletin board or placed on the library shelves in book form. The wise teacher will not impose rules upon the children, but will give them an opportunity to grow in citizenship by making and living according to their own regulations. Rules made in this manner are usually effective because they develop in response to needs. They also contribute to child growth by developing feelings of responsibility. Children often produce some very amusing and practical rules, like the following, for instance, which appeared on a list of rules in one classroom: "Put your books on a high shelf at home so the baby can't get them."

BULLETIN BOARDS

Bulletin boards are essential parts of the reading program, and permanent places in the classroom should be set aside for them. They may occupy portions of wall space or be placed easel-fashion in convenient places. Some teachers

find it convenient to use the backs of doors or even corners of the blackboards. When there is plenty of blackboard space some of it may be used for writing directions. It is desirable that a bulletin board be near the door so that pupils may consult it when they first enter the room. Information on the bulletin board is as important to the school child as the daily newspaper is to the business man.

A wide variety of materials may be used to make bulletin boards. Celotex is one of the most practical materials. This may be bought from the building supply companies for about six cents a square foot. This material wears well and is attractive in appearance. Its texture makes it practical for the use of pins and thumb tacks. Materials sometimes used are cork carpet, beaver board, and soft wood. A bulletin board will usually have a more artistic appearance if it is stained and framed with material which matches the other woodwork in the room. It receives contributions from both teacher and pupils. Special instructions for the children are placed here. These will be about caring for the room, preparation of materials, local happenings, and activities of the school day. Announcements of this type are: "We shall go on a field trip today at 2:30," "Wallace may feed the rabbit," and "Mary, Max, and Louise will serve lunch today." Pupils soon form the habit, upon first entering the room, of consulting the bulletin board, and, throughout the day, of watching for new notices. The bulletin board will also contain pictures and clippings related to the children's interests and the day's work. Good examples are pictures of pets, airplanes, boats, automobiles, and interesting people. Attractive illustrated posters of children's poems and copies of poetry they like best may often be used. Good pieces of work done by the pupils during the activity period and at other times may be displayed on the bulletin board. Names of books may be an-

nounced here, together with other good reading materials. For example, when the unit in which the children are engaged is concerned with dogs, a list of available library books with stories and other information about dogs should be placed on the bulletin board. Colored paper covers of new books are attractive and stimulating when properly displayed. Much of the material suggested above may be prepared and posted on the bulletin board by the pupils, especially in the grammar grades.

The teacher may judge the effectiveness of her bulletin board by its appearance and the use made of it by the children. Attractiveness and neatness should always be considered, but content is most important. The activities of the pupils should be increased and enriched because of the information and suggestions posted on the bulletin board.

STANDARDS FOR EVALUATING A READING CENTER

The teacher will need to consider a number of points in measuring the effectiveness of the reading center in her room. First, the books and other reading materials in the reading center should satisfy three requirements. They must be good from a literary and artistic standpoint, adapted to the grade level of the children, and suited to their interests. These interests are of three kinds: those common to most children at the same age level; those which depend upon the child's environment; and those which arise in connection with the units of work in which the children are engaged.

✓ The reading center should be so attractive that it will draw children to it for voluntary reading. The paint used for the reading center may be a different color from the woodwork but should harmonize with the rest of the room. Warm or cool colors selected according to the amount of sunlight in the room, proper provision for light, and com-

fortable, substantial furniture, will do much to attract the interest of pupils. The reading center should be kept clean, orderly, and attractive.

The children's interest and pleasure in reading will be increased if they are allowed to use the center informally. It should show by its appearance that it is in constant use.

OUTCOMES

Several valuable outcomes may be expected from the effective use of a good reading center. One of the most important of these is the development of creative power in children. This is evidenced by their original stories, poems, and pictures.

Increased power in speed and comprehension and a genuine love for reading come from the extensive reading which is stimulated by the center. The fact that the child has a special place in which to read and a motive for moving around in the room gives a more satisfactory mental attitude, which increases the effectiveness of the reading. It has been noted that children often read very difficult material because of their interest in a particular topic. For example, a third-grade boy who became deeply interested in aviation read books usually used in the seventh grade. The stories made by the children are very useful in developing power in both oral and written expression. The first-year pupils learn such difficult words as *radiator* and *easel*. The pupil's vocabulary is a living, growing thing and needs constant revision. The child's own story interests him. This is the same type of interest that adults experience in reading about themselves in the newspaper. Some typical children's stories are given here.

We read books today.

We read about the old elephant.

ROSE (Grade 1)

Our New Library

Our new library is pretty.
It has pretty books in it.
They have good stories in them.
We like to read them.

ELLA MAE (Grade 1)

New Books

We have some new books.
We made them.
They are "Good Morning" books.
They have red dresses.
They are pretty.
We like to read them.

(Grade 1)

My Boat

I drew a boat.
I made a flag on it.
The boat is going to Key West Florida.

J. D. (Grade 1)

Another outcome that may be expected from the effective use of a reading center is more effective work in other subjects. This results from the increased amount of reference reading. Besides the information gained, there is growth in desirable attitudes. The children's interests are deepened and multiplied; they have more intellectual curiosity; and they become more independent in finding out things for themselves.

One of the most important outgrowths of an effective reading center is the development of an appreciation for good literature. Reading materials are presented attractively, and this makes reading a pleasure instead of a duty.

Books are selected in accord with the varying abilities and interests of children and care is taken that new interests develop out of the old. The child grows in the appreciation of humor, good literary style, social values, and beautiful things as embodied in good literature. It is significant that in recent years the type of book that teachers and children ask for has changed for the better.

SUMMARY

This chapter has been given to a detailed discussion of the practical problems involved in the organization and use of a reading center. A reading center has been defined and topics relating to it have been discussed in detail. Suggestions have been given concerning its location. The problem of equipment has been taken up from the standpoints of selection and methods of securing it. Detailed instructions have been given for the use and care of the reading center. The standards for evaluating it have been based upon the adaptation of the material to the grade-level and interests of the children, attractiveness, and effective use by the children. The important outcomes discussed have been the development of creative power in children, increased reading skills, more effective work in subjects other than reading, and the development of an appreciation for good literature. The information has been furnished for the purpose of helping the teacher to organize a reading center, use it, and evaluate its effectiveness.

BIBLIOGRAPHY

- Beust, Nora. *Graded List of Books for Children*. Chicago, American Library Association, 1930. 149 pages.
- Bone, Woutrina A. *Children's Stories and How to Tell Them*. New York, Harcourt, Brace and Company, 1924. 200 pages.

- Dalglish, Alice. *First Experiences with Literature*. New York, Charles Scribner's Sons, 1932. 162 pages.
- Davis, M. G. *Stories: A List of Stories to Tell and Read Aloud*. Second edition. New York, New York Public Library, 1933. 71 pages.
- Dunn, F. W. *Interest Factors in Primary Reading Material*. New York, Bureau of Publications, Teachers College, Columbia University, 1921.
- Gardner, E. E., and Ramsey, Eloise. *A Handbook of Children's Literature*. Chicago, Scott, Foresman and Company, 1927. 359 pages.
- Hartman, Gertrude, and Shumaker, Ann. *Creative Expression*. New York, The John Day Company, Inc., 1932. 350 pages.
- Mahoney, Bertha E., and Whitney, Elinor. *Realms of Gold in Children's Books*. Garden City, N. Y., Doubleday, Doran and Company, Inc., 1929. 796 pages.
- Moore, A. C. *The Three Owls*. First Book, New York, The Macmillan Company, 1925. 462 pages; Second Book, New York, Coward-McCann, 1928. 440 pages; Third Book, New York, Coward-McCann, 1931. 462 pages.
- Sanford, A. P., and Schauffler, R. H. *Magic of Books*. New York, Dodd, Mead and Company, Inc., 1929. 424 pages.
- Sears, Minnie Earl. *Children's Catalog*. New York, The H. W. Wilson Company, 1930. Supplement, 1933. 877 pages.
- Shedlock, Marie L. *The Art of the Story Teller*. New York, D. Appleton-Century Company, 1916. 288 pages.
- Terman, L. M., and Lima, Margaret. *Children's Reading: A Guide for Parents and Teachers*. Second Edition. New York, D. Appleton-Century Company, 1931. 422 pages.
- Troxell, Eleanor. *Language and Literature in the Kindergarten and Primary Grades*. New York, Charles Scribner's Sons, 1927.

CHAPTER III

THE ORGANIZATION AND USE OF A SCIENCE CENTER

A SCIENCE CENTER plays a vital part in the school program. It helps to satisfy the child's fundamental need to observe his environment and learn about it. The organization of a science center is not a difficult matter in any classroom, since local materials may be collected by the children.

DEFINITION

A science center is a collection of science materials which are available for the free use of pupils in acquiring scientific facts.

LOCATION

The science center should be located where the most interesting materials can be assembled and displayed to the best advantage, both from the standpoint of attractiveness and from that of convenience for ready use. It may be either in the schoolroom or on the playground. In the classroom, racks holding specimens may be arranged attractively wherever there is room, or a window ledge may be used to advantage. Care must be taken that collections placed in or near windows do not shut out air or light. Science centers for some grades may be on the playground. Examples of this kind are school gardens, flower gardens, growing shrubs, bird baths, and cages for pets.

THE EQUIPMENT OF A SCIENCE CENTER

A variety of equipment may be used in the science center. The aquarium is a vital part because it lends itself to the study of live specimens. Aquariums, which may be used for tadpoles and smaller specimens, are of many kinds. They range from simple glass jars for tadpoles, up to elaborate tanks with running water. Sand, pebbles, shells, and green swamp or pond grass are desirable not only for general attractiveness but also for the purpose of caring properly for the animal specimens. The use of both plants and animals in proper proportions keeps the requisite oxygen content and avoids the necessity for changing the water. Cementing rocks on the outside of an aquarium may improve its appearance. Directions for building aquariums are very simple; often the most practical as well as the most attractive are built by pupils and teacher.¹ Large glass jars, such as those used for storage batteries and those used in stores for displaying candy and peanuts make excellent aquariums. Racks, tables, and cabinets are very practical for holding dry specimens, such as shells, wood, and rocks. Glass jars may be used for specimens requiring alcohol or formaldehyde.

A wide variety of specimens may be obtained for the science center. Live animals are especially useful for providing learning experiences. Some interesting pets for the classroom are rabbits, squirrels, kittens, white rats, and puppies. Goldfish are a never ending source of delight. Frog eggs and tadpoles provide highly desirable materials for observation of life cycles. Turtles, terrapins, snails, crawfish, and minnows are easily obtained and are very interesting to the children. Cocoons are valuable additions

¹ Rose B. Knox, *School Activities and Equipment* (New York, Houghton Mifflin Company, 1927).

to the science center because of the opportunities they afford for continued careful observation. There are often beautiful fall flowers and grasses, which may be used for decorative purposes. These may sometimes be made more varied by coloring them with dyes extracted from red oak underbark, onion skins, walnuts, gall berries, and sumac berries or bark; also fabrics become more interesting when colored by the children with vegetable dyes. Experimentation with these dyes also provides opportunities for gaining scientific information. Under the head of miscellaneous specimens come such things as seeds, shells, feathers, birds' nests, hornets' nests, pieces of wood, preserved leaves and flowers, autumn leaves dipped in paraffin, and fabrics of various kinds. Exhibits which show processes in the manufacture of fabrics and foods may be obtained upon request from some manufacturers.

The alert teacher will secure many pictures that will be useful in the science center. These include pictures of animals of all kinds, of flower studies, and of inventions. These pictures may be framed, mounted on construction paper, or neatly clipped and pinned to the bulletin board. Manila folders or more elaborate portfolios are useful for taking care of unframed pictures.

In the room there should be articles from magazines and newspapers, and books containing scientific information, particularly that related to materials found in the science center. Some of these references will probably be in the reading center, and some in the classroom files, but their connection with the science center will be evident. Selected references in this field are given at the close of this chapter.

HOW TO SECURE THE EQUIPMENT

There is usually very little expense connected with organizing a science center. The specimens can be collected

by the children. Racks, tables, and cabinets can be made by them. Scrap-lumber, especially crates and boxes, can be usually secured without cost.

Specimens may be obtained in several ways. Individual children, the teacher, or groups may bring to the center materials which have been collected on nature-study walks, visits, and activities outside of school, or obtained by exchange with other classrooms. Also, parents often become interested and contribute valuable objects. In addition, interesting materials may be obtained free from companies that have prepared educational exhibits for advertising purposes. When the collection of specimens is once started, it will grow rapidly as the interest increases. When first procured, all specimens should be carefully labeled, and placed in the space allotted to them.

Children enjoy learning to prepare and mount specimens. Insects, butterflies, and moths are usually mounted under glass. They may be held in place by pins or mats made of cotton, the down from cat-tails, or filaments from milkweed pods. These are most attractive when framed and hung about the room. Mounting birds and the skins of fur bearing animals is more difficult, but with the aid of parents and friends, it can be done by the average school group. In rural communities hunters and trappers can furnish information relative to this work; in cities the children may seek information from taxidermists or fur dealers. The specimens may be stuffed and arranged in lifelike poses on tree branches, or mounted flat on boards. Among animals which have proved practical for this work are: rabbits, squirrels, birds, moles, snakes, and fish. Skins of deer, bears, and other large animals make appropriate rugs for the science center.

THE USE AND CARE OF A SCIENCE CENTER

A science center may be used for many purposes. There is the usual nature-study discussion, during which a study is made of new specimens. These discussion periods often provide the teacher with opportunities to select specimens that illustrate the characteristics of large groups of animals and plants.

Pupils often gather informally around a science center, asking questions and discussing the materials already in the center. The pupils should be encouraged to observe carefully all changes taking place in the science center. Usually, it is best to have the pupils keep a written record of developments noted. Pupils' questions may be answered by other pupils, by the teacher, or by material found in a reference book. Very often during such activities the teacher will find that she, as well as the pupils, is learning. Often there is a scientist in the community who may be consulted and who will visit the school and discuss with the children questions relating to science.

A very natural use of the science center is in the language work. There is a growth in power of one's self-expression, as well as an accumulation of scientific information. This is illustrated in the children's oral stories, examples of which are given under "Outcomes," on pages 46-48, below.

The nature-study walk is an activity connected with the science center. Such walks should be planned carefully, and a definite objective decided upon each time. For example: "to list the birds we see today and be able to describe them" is a typical objective for a hiking group. Nature-study walks can be checked by informal discussions and the making of original stories. The best discussions usually take place during the walk.

A catalog of specimens should be a part of the science

center. This should be written in ink and bound as attractively as possible. It should contain: (1) the name of each specimen (both common and scientific for higher grades, if possible); (2) the date and place secured; (3) the name of the donor. This last will encourage the pupils to look for specimens and contribute them to the collection. The catalog may be a loose-leaf notebook or a set of cards arranged in a box.

Besides the specimen catalog, other booklets are very desirable. Often these are made by the children and regarded as the permanent property of the room. They may be kept in the reading center or with the science materials, depending upon the space in the room and the contents of the booklets. Some good subjects for booklets are: birds, flowers, vegetables, leaves, trees, shrubs, insects, animals, and inventions. Pressing flowers and leaves and mounting them on the pages, afford opportunities for worth-while activities and stimulate increased study. Narrow strips of adhesive tape or paper with paste may be used to fasten specimens to the pages. Each should be properly labeled, and interesting, descriptive information should be given, such as: where found, conditions for growth, size, special identification features, and use. The amount of data depends upon the grade-level of the children. Pictures drawn by the children are sometimes useful from a scientific standpoint as well as from an artistic one. Pupils' stories, illustrated, make interesting books. Clippings from magazines and newspapers of pictures and articles are useful, both because they provide scientific information in general and because they keep the children in touch with some of the present-day happenings in science.

The following is an outline of a suggested activity for a small space: the growing of a bulb in the classroom. Pupils first secure the bulb, container, and pebbles or soil necessary

for planting. They will probably make a booklet containing: the story about securing the materials, drawings of the bulb, stories and drawings of the bulb at different stages of growth, and records about the care of the bulb or measurements at different dates. An attractive and suitable cover should be made for the booklets. Language experiences will come from the making of stories and keeping of records. Arithmetic problems arise concerning measurements and the cost of bulbs and containers; also, the bulb may be sold when in bloom. Opportunities for art experiences come with the designing of the cover and the drawings of the bulb at different stages of its growth. Songs about flowers may be found by the children and sung during the music period.

Children should be responsible for the care of the science center; they should be encouraged to make it, at all times, a clean and attractive place. Live animals need sanitary surroundings and thrive best when taken out of doors often and kept there for several hours at a time. Floors in animal cages should be removable for the purpose of proper and frequent cleaning. During week-ends, pets may be taken care of by various pupils. All of the foregoing activities, carried on by the school children, afford opportunities for developing habits of responsibility.

At the end of the year the best materials which can be prepared should be selected from each science center to become a part of the permanent school museum. In this way such materials are made available to the entire school and provide opportunities for individual classrooms to build up their own science centers each year. The materials for the school museum should be carefully labeled and catalogued.

STANDARDS FOR EVALUATING A SCIENCE CENTER

The teacher has several ways of knowing whether or not the science center in her classroom is functioning properly. Possibly the most important check is the continued interest of the children. This interest will be evidenced by frequent visits to the science center, spontaneous conversation and questions about the materials there, and efforts to add to the collection.

Second, the science center should develop definite habits of responsibility, as shown by the care of pets and other living things.

Third, there should be definite gains in subject-matter, particularly in the field of science. This information can be checked by listening to the conversations of children, questioning them informally, giving tests made by the children themselves, and studying the records of their work. These records include stories, pictures, classifications, lists of specimens and observational records.

Fourth, the science collection left in the school should meet definite standards. The specimens should be interesting and worth while; properly arranged, labeled, and catalogued; and accompanied by booklets of informational material.

OUTCOMES

Habits of responsibility and initiative develop naturally in the organization and use of the science center. Interest in the environment and powers of observation are usually increased. Another outcome will be a steadily growing school museum, which, each year, should become a more important part of the program.

Probably the most important outcome to be expected from the science center, however, is the accumulation of scientific

knowledge of a simple and practical kind. Other subject-matter learnings are in reading and language. These come from the extensive reading of references and the making and reading of original stories. Some examples of these follow:

Dotty

Jesse found a turtle in the branch. He brought it to school and put it in the aquarium in our room. We named it Dotty because it had yellow dots on its shell. We feed it bugs, worms, and lettuce leaves.

(Primary Grades)

My Calf

I have a little calf. He is black and white. His front feet turn under. He likes to play with me. I like to play with my calf. Uncle John gave him to me.

(Grade 1)

Our Chicks

We have eight little baby chickens.
There are four black ones and four yellow ones.
One yellow chick died.
Now there are seven.
They are growing fast.
We feed them every day.
We like to watch them play.

(Grade 1)

Wiggle Tail and Whitey

We have two white rats.
They have pink eyes.
Their tails are long and straight.

They eat bread and lettuce.

They like water.

We named them "Wiggle Tail and Whitey."

(Grade 1)

The Wasp House

Mamie brought us a wasp house. The wasp chews old wood and makes paper for the house. The house has many rooms. The baby wasps live in the rooms. Two little wasps hatched out in one room.

(Grade 1)

Shells

We have some pretty shells.

We have big shells and little shells.

We have white shells and yellow shells.

We got them on the beach.

We put the conch shells to our ears and
they sounded like the waves rolling.

(Grade 1)

Caterpillars

A little boy brought three caterpillars to school. He found them in a cedar tree. He put them on a bush. They ate the leaves on the bush. They are brown and furry. Caterpillars make butterflies.

(Grade 2)

Our Tadpoles

We have some tadpoles in a glass jar. We feed them seaweed and bread. First they were little eggs. Then they were wigglers. Now they are tadpoles. Soon they will be frogs.

(Grade 2)

Bunny Rabbit

The rabbits live near the bushes so they can hide when they hear anyone coming. The rabbits have brown fur so the enemy cannot find them so easily. When the rabbits are growing the mothers teach them to protect themselves. Rabbits run when they see a hawk and hide in the bushes. They eat cabbage.

(Grade 3)

Baby Chicks

Mother has some baby chicks. Some are yellow, some are black. They are pretty baby chicks. I like to feed them. The chicks say "Peep-peep." The mother hen says, "Cluck-cluck."

(Grade 2)

Bunny Rabbit

Bunny Rabbit is brown. He lives in a cage. Bunny Rabbit will eat potatoes and apples and leaves. He will come to you and jump up.

(Grade 2)

SUMMARY

This chapter has taken up in detail the practical problems involved in the organization and use of a science center. The science center has been defined; equipment has been discussed from the standpoints of selection and methods of securing it; detailed suggestions have been made for making the science work a vital part of the school program; probable outcomes have been pointed out; and standards have been given by which the effectiveness of the work may be measured. It is to be noted, however, that science work in a classroom permits of much originality on the part of

the teacher and pupils, and the work may unfold in many different ways. The teacher should be careful not to adhere to set ideas, but to provide opportunities for the development of the interests and initiative of the pupils.

BIBLIOGRAPHY

- Anthony, H. E. *The Capture and Preservation of Small Mammals for Study*. New York, American Museum of Natural History, Education Department, 1931. 54 pages.
- Beard, D. C. *The American Boys' Book of Bugs, Butterflies and Beetles*. Philadelphia, J. B. Lippincott Company, 1915. 309 pages.
- Beust, Nora. *Graded List of Books for Children*. Chicago, American Library Association, 1930. 149 pages.
- Bradley, J. C., and Palmer, E. L. *Insect Life*. New York, The Boy Scouts of America. 214 pages.
- Caldwell, Otis W., and Curtis, F. D. *Introduction to Science*. Boston, Ginn and Company, 1929.
- Carr, W. H. *The Stir of Nature*. New York, Oxford University Press, 1930. 208 pages.
- Comstock, Anna B. *Handbook of Nature Study*. Ithaca, N. Y., Comstock Publishing Company, 1928.
- *The Pet Book*. Ithaca, N. Y., Slingerland-Comstock Company, 1927. 310 pages.
- Craig, Gerald Spellman. *Certain Techniques in Developing a Course of Study in Science for the Horace Mann Elementary School*. New York, Bureau of Publications, Teachers College, Columbia University, 1927. 73 pages.
- Dickerson, M. C. *Moths and Butterflies*. Boston, Ginn and Company, 1901. 344 pages.
- Fall, Delos. *Science for Beginners*. Yonkers-on-Hudson, N. Y., World Book Company, 1918.
- Gaylord, Ilsiën Nathalie. *Sea Creatures*. Boston, Little, Brown and Company, 1923.
- Green, Charlotte Hilton. *Birds of the South*. Chapel Hill, N. C., The University of North Carolina Press, 1933. 277 pages.

- Hodge, A. E., and Derham, Arthur. *Goldfish Culture for Amateurs*. New York, Frederick A. Stokes Company, 1928. 103 pages.
- Innes, W. T. *The Modern Aquarium*. Philadelphia, Innes and Sons, 1930. 62 pages.
- Lutz, F. E. *How to Collect and Preserve Insects*. New York, American Museum of Natural History, Education Department, 1924. 27 pages.
- McCreery, James Lindsay. *Exploring the Earth and Its Life*. New York, Frederick A. Stokes Company, 1933. 262 pages.
- McKay, Herbert. *First Steps in Science*. Vol. IV. New York, Oxford University Press, 1929.
- Mellen, Ida M. *Fishes in the Home*. New York, Dodd, Mead and Company, Inc., 1931. 178 pages.
- Pieper, Charles J., and Beauchamp, W. L. *Everyday Problems of Science*. Chicago, Scott, Foresman and Company, 1925.
- Ramsey, Grace Fisher. *Project Making in Elementary Science*. "School Service Series." New York, American Museum of Natural History, Education Department, 1934. 25 pages.
- Rockwell, F. F. *Rock Gardens*. New York, The Macmillan Company, 1928. 86 pages.
- Siepert, A. F. *Bird Houses Boys Can Build*. Peoria, Manual Arts Press, 1916. 60 pages.
- Thomson, J. Arthur. *The New Natural History*. 3 vols. New York, G. P. Putnam's Sons, 1926.
- Van Buskirk, Edgar F., and Others. *Science of Everyday Life*. Boston, Houghton Mifflin Company, 1930.
- Verrill, A. H. *The Boy Collector's Handbook*. New York, Robert M. McBride and Company, 1915. 290 pages.
- *Harper's Book for Young Naturalists*. New York, Harper and Brothers, 1913. 382 pages.
- *Pets for Pleasure and Profit*. New York, Charles Scribner's Sons, 1915. 359 pages.
- Washburn, F. L. *Injurious Insects and Useful Birds*. Philadelphia, J. B. Lippincott Company, 1918. 453 pages.
- Washburne, Carleton W. *Common Science*. Yonkers-on-Hudson, N. Y., World Book Company, 1920.

CHAPTER IV

THE ORGANIZATION AND USE OF AN ART CENTER

ART HAS MANY phases, and it functions in the daily life of everyone. Both creative art and appreciative art are powerful factors in developing the habits, attitudes, skills, and abilities of children. Recognition of this fact has made art a vital part of the school program.

Many teachers recognize the importance of art but feel unable to give adequate guidance to pupils in their art experiences. One is continually hearing such questions as: "How can I teach art to my children when I myself know nothing about it?" "How can I get the things needed for art, such as clay, paint, paper, etc.?" The photographs of pictures and art objects used in this book show work done by the children in classrooms where there was no special art supervision. The teachers had had little or no art training and most of the materials used came from local sources. If the teacher will create a stimulating environment, provide a suitable place and time for the work, give encouragement, and show appreciation for the work done, she will be teaching art. She need not fear for her results. In any average classroom there will be one or more children talented in art. The fact that many pupils have more talent in art than the teacher is a help, not a hindrance. If she is interested in her work, is alert to secure suggestions from all possible sources, and plans her work carefully, she will grow along with the children and become more discriminating in her own tastes. Her appreciation for their work will stimulate

them to do their best and her broader experience will enable her to bring many things to the classroom which will give the children new ideas for expression. This chapter is concerned with the practical problems involved in giving creative and appreciative art a place in the school program.

DEFINITION

Art centers are places in the classroom where art materials are provided for the use of children in order that they may express themselves creatively and grow in the appreciation of various forms of art.

LOCATION

Art plays such an important part in the various activities of the classroom that it cannot be confined to one particular place. When it is most effective it becomes an essential part of the various activities. Also, art is required in the selection of furniture and in the arrangement of the room. The impression of the room as a whole should be satisfying rather than neutral or irritating.

Special art centers may be arranged at convenient places in the classroom and on the grounds. The place in the classroom will depend upon the space and light. This is discussed more fully under the head of equipment. The school grounds offer opportunity for artistic development and appreciation in planning for the arrangement of shrubbery, flowers, bird baths, etc.

THE EQUIPMENT OF ART CENTERS

The equipment of indoor art centers consists of objects of æsthetic value in the room and materials for creative art. In selecting pictures and artistic objects it is better to select things that the children will enjoy than to select something classical just because it is popular to put such things in the

classroom. The pictures should be hung in relation to other things in the classroom, with the center of interest slightly above the level of the eye. Concealed wires are best, but if it is necessary to hang the picture from a molding, two wires should be used so that the picture will hang flat against the wall. Unframed pictures may often be mounted on construction paper and displayed on the bulletin board. This is especially desirable when the pictures are of subjects related to large units of work for that particular classroom, or are of timely subjects, such as pictures of flowers in the early spring.

Friezes which have meaning may be used decoratively. Commercial borders are usually a hindrance to the creative development of children. If borders are used, they should be worked out in an interesting way and not be mere repetition for the purpose of allowing each child to put up the same thing. A unit from a commercial design may often be used to advantage in a project or for a special occasion.

Flowers, when properly selected and arranged, are of artistic value. Through practice and guidance, children will develop along this line. Help may be obtained here from pictures of flower studies and by the observation of different flowers in their natural settings.

Pieces of good statuary, good pottery, vases, and other artistic objects have their value in the classroom. Often there is good native pottery available, and in this case social values are added to the artistic. Interesting textiles for wall hangings may be purchased at prices ranging from twenty-five cents up, depending on the size and on the quality of material and workmanship. Gift wrapping paper may be used as decorative panels. Textiles and papers may be secured with designs and colors suitable for the various classrooms. Beauty of workmanship and materials, as well

as usefulness, are points to keep in mind when selecting artistic objects to be used in the classroom.

There are several types of creative art centers. One of these is the easel for painting pictures with brushes and cold water powder paint.¹ Other materials needed for easel painting are small glass jars with screw tops, for holding the various colors of paint, and a box with legs, for holding jars of paint, paintbrushes, and water. The height of this box should be such that it may be used easily by a pupil who is seated at the easel. Brown kraft paper, unprinted newspaper, and the project roll are economical and practical papers for use on the easel. All of these may be secured from art supply houses, and local hardware stores can supply the kraft paper. Wooden paddles are needed for stirring the paints. Colored chalk or crayolas are sometimes used instead of liquid paint.

Drawing and coloring may be done on paper and cloth at the tables with pencils, colored chalk, and water colors. Both white and colored chalk should be available for black-board use.

The clay center provides many interesting art experiences. The equipment needed for this is a table, clay, suitable containers for the clay, and cloth for keeping it moist. If the table cannot be cleaned easily it may be covered with linoleum, oilcloth, or wrapping paper. Moist clay, which may be obtained from a pottery plant, is very satisfactory. If there is native clay near by that does not contain too much sand, it may be used to good advantage. If the clay must be ordered from a long distance, it will be cheaper to order it in powdered form. It may be purchased very cheaply from art supply houses. A damp covering of a burlap bag or an old wool sweater may be used to keep the clay moist. Tin containers may be used for the clay but earthenware

¹ Obtained from reputable art supply companies.

jars are more satisfactory. A small thin paddle is an aid for smoothing the clay articles after they are partially shaped. An article which is partly made one day may be worked on the next day if it is wrapped in a damp cloth and placed in a cool place overnight. Shellac and paint will be needed for decorating many of the finished articles and making them waterproof. There is a kind of enamel paint on the market which is very useful for this work because it spreads evenly, dries quickly and is very durable.¹ Lumps of clay may be made into various shapes with the hands or the clay may be rolled into a long roll and then coiled into vases, bowls, etc. In the making of clay animals and other objects, children should be encouraged to consider general outlines rather than details. Small sticks and curved wires are useful in shaping animals. All articles should be slowly and thoroughly dried before they are shellacked. If they are to be used for holding water they should be shellacked five times, before they are painted. A study of pottery or of Indian life may stimulate the children to experiment with outdoor firing and other processes used in clay work. In some localities there are kilns where the children may have some of their work glazed and fired by an expert.

A sewing center stimulates creative art. Materials needed are pieces of cloth, thread, needles, scissors, thimbles, tape line, and workbasket or other container. Large needles and coarse thread are best for the use of children in primary grades. The sewing center should also include strips of cloth, burlap, frames for weaving, large wooden needles for knitting, and large wooden crochet needles. Sometimes small wooden paddles are useful for making one type of hooked rug. Rugs may be woven, knitted, braided, crocheted, and hooked.

Materials for basket making include pine straw and cones,

¹ Waterspar Enamel, Pittsburgh Plate Glass Co., Pittsburgh, Pennsylvania.

split wood, vines, reeds, raffia, needles, thread, small tacks, and ready-made perforated bottoms. Books and pamphlets illustrating and describing needlecraft articles are helpful additions to the sewing center.

Dyeing affords rich possibilities for art experiences, especially in the grammar grades. Besides using commercial dyes the children may experiment with berries, leaves, and the bark of local plants. Some suggested dyes already mentioned in the chapter on science are sumac leaves and berries, gall berries, onion skin, walnut hulls, elm bark, and red oak underbark.

The tool center provides another type of art experience. Materials necessary are lumber, nails, hammers, saws, workbench, and box or rack for tools. A vise, a gimlet, and a plane are very useful as the work develops. Sandpaper or pieces of glass will be needed for smoothing rough surfaces, and painting materials for making the finished products more attractive.

There should be one or more art appreciation centers in the classroom. A picture library is a worth-while project of this kind. The pictures may be mounted and grouped on the wall or put in portfolios or wall pockets. These portfolios may be made so artistically that they will function as a part of the art appreciation center. Good textbooks on art, adapted to the grade-level of the children, should be a definite part of the art center. These books should include both the creative and the appreciative phases of art.

HOW TO SECURE THE EQUIPMENT

The materials suggested for art centers may be secured in three ways: bought or donated, made or collected by the children, or obtained by exchange with other classrooms. Some materials that are usually bought, donated, or lent are: pictures, statuary, pottery, cold water paint, brushes,

paper, white and colored chalk, crayola, pencils, water colors, cloth, burlap, oilcloth, clay, clay jars, shellac, enamel paint, thread, needles, crochet needles, knitting needles, raffia, bottoms for baskets, reeds, commercial dyes, lumber, nails, tools, sandpaper, frames for pictures and wall hangings. Some firms offer special art service to schools.¹

Much valuable material may be made or collected by the children. Materials that may be obtained in this way are: pictures, friezes, flowers, pottery, easels, glass jars with lids, sticks, native clay, sewing baskets and containers, weaving looms, crochet needles, knitting needles, small wooden paddles, pine straw, split wood or vines, shrubbery, local dyes, lumber, work bench, mitre-box, rack or box for tools, pieces of glass, picture frames, wall hangings, portfolios, and wall pockets. A simple easel may be made with a hinged top so that it may be placed flat against the wall when not in use. Simple weaving looms are usually made in the shape of a rectangle with finishing nails across the ends. A more complicated loom is made with beams and heddle.² A practical sewing container may be made by using a round wooden cheese box and lid, fastened to three pieces of wood which form the legs.

CREATIVE ART FUNCTIONING

The creation of beautiful and useful objects is a source of deep satisfaction to most people and for this reason alone is worth while. Much of the art work done by the children, however, functions also in other ways. While they are developing large units of work, the pupils usually find many opportunities for creative and appreciative art. For example, friezes are often outgrowths of large units of work in

¹ Industrial Arts Coöperative Service, 519 West 121st St., New York City.

² F. G. Bonser and L. C. Mossman, *Industrial Arts for Elementary Schools*, (New York, The Macmillan Company), pp. 144-46

history and reading. These friezes are made with chalk, crayola, or cold water paint. They usually present a unified idea, such as the evolution of boats, or the pottery of all nations. Friezes made on cloth with wax crayolas and then pressed with a hot iron, make beautiful and interesting wall hangings. Appliquéd wall hangings, similar to those made by the early Egyptians, are very decorative and may be made in the upper grammar grades in connection with units of work. Indian and Persian prints and those of historical significance, if available for observation, will furnish inspiration for children to create similar designs. Vases, plaques and other artistic articles made of clay may be used to beautify the classroom.

The illustration of original stories, songs, and poems by the children furnishes excellent motivation for art work. The illustration is usually placed on the same page with the story or poem or on the opposite page. Materials worth preserving may be kept in portfolios or arranged in booklets. The making of booklets is in itself an art. Children may learn to bind the books properly and to design attractive covers for them. Stick printing is practical in the primary grades and block printing may be used in the grammar grades. Designs for block printing may be cut on linoleum, soft wood, cork, or potatoes. The blocks are dipped in paint spread on glass or some other flat surface, then pressed on cloth or paper. Several thicknesses of newspaper or other absorbent material should be used under the material being printed. Care must be taken that the pages in the booklets show artistic arrangement of materials. This includes clippings and pictures, as well as the children's own writing, lettering, and drawing. Kraft paper, project roll paper, and jute paper are desirable for use as leaves for the booklets. Covers may be made from cloth, paper, and cardboard. Bogus paper and colored construction paper, as well

as some of the more expensive art papers, are useful in booklet making as well as in other types of art work.

As a whole, the classroom may be considered as a laboratory for the working out of the principles of art. This involves the selection and arrangement of furniture and other articles, together with the color combinations employed. Different centers of interest may be in different colors, but these should all harmonize. No room can be considered artistic in the highest sense unless it is clean and well kept. The effect of the room as a whole should be pleasing. The teacher's task is to provide a stimulating environment, give children free opportunity to use art materials, and encourage them to raise their standards of taste as she becomes better acquainted with their needs. Pupils' artistic work should be evaluated at the conference period by pupils and teacher as the children are encouraged to talk freely about their own work. Explanations by pupils who did the work often help the others to understand and appreciate what has been accomplished. At no time should adult standards be imposed upon the children.

APPRECIATIVE ART FUNCTIONING

Children should grow in the appreciation of real works of art, of nature, and of the artistic efforts of their group. Possibly the best approach to artistic appreciation is the seeing of beauty in the environment, in sunsets, trees, water, flowers. Children should learn early that there is art in the arrangement of flowers, and even in the grouping of vegetables and fruits, also. They should learn, too, that there is art in the way that people sit, stand, and walk. All this lays the foundation for more advanced art appreciation.

Interesting art experiences may be developed through the use of artistic objects, such as pictures, tapestries, prints, statuary, china, pottery, fabrics, good furniture, and metal

work. These studies usually grow out of the development of large units of work. Sometimes discussions arise informally; at other times, they are planned and carried out in great detail. Some particularly desirable materials to use in this connection are the Cizek prints.¹ If possible, arrangements should be made for children to visit private and public collections of works of art. A survey made by pupils and teacher of art materials in the community has social as well as artistic value.

It is important that the children learn to appreciate the work of the group at different stages of development. They should often come in contact with pieces of work which are satisfactory for the various grade levels. This can be done by exhibits and by the exchange of materials among various classrooms.

STANDARDS FOR ART IN THE CLASSROOM

A teacher has several ways of determining whether or not an art center is functioning effectively. The interest of the children is an important indication. They should often use the art centers freely and voluntarily when not engaged in a directed class activity. An important standard to apply to the attainments of the children is that the thing done should be a good piece of work for the particular child that does it. Art activities should include both group and individual work and should provide experiences for the entire class. Another indication that the art center is functioning effectively is that artistic results are being obtained with a minimum expenditure of money. This applies to selection of materials, prevention of waste, and care of equipment. The children's interest in works of art and their enjoyment of them as evidenced by their comments, questions, and actions will be indications of the success of the art center. A

¹ The Austrian Junior Red Cross. Vienna I, Stubenring 1, Austria.

final evidence of the success of the art center will be the general appearance of the room. It should be clean, well-kept, and attractive. At all times there should be on display pupils' artistic work which will indicate their interests, activities, and stage of development. Care should be taken not to destroy the attractiveness of children's work by overcrowding it. Things kept in the classroom should be either useful or beautiful or both.

OUTCOMES

Perhaps the most important outcome is the life which art puts into the school program. Children are happier when they are creating things and when they live in attractive surroundings which have social values for them. Success, which is so often needed as a stimulant for many individuals, can be found at many levels in art work. The tangible results obtained in art work are particularly satisfying to many children.

A very important outcome of the art work should be the adding to the school of some valuable art materials. These include such articles as furniture for the various centers, books on art bought or made by the children, friezes, wall hangings, pottery, and historical models. These should be carefully selected on a basis of beauty and usefulness. Such materials will be useful the next year. Some of them will be used in the classroom and others will be kept in the museum for reference with units of work, and for comparison as better work is done.

The individual child should show artistic development as a result of working with art materials, study, observation, and evaluation of work in the conference period. The handling of tools should develop better muscular control. He should grow in the appreciation of the work of others. In evaluating the work of the group he should be able to

judge whether or not a piece of work is up to the standard of the child who does it. The knowledge gained through weaving, dyeing and other activities helps to build a background of understanding and appreciation for workmanship, and makes for more careful use of materials and other equipment. He learns to see the value of old furniture, old pottery and old quilts. The time element, or sense of historical development, is an important factor to be considered. For example, in the study of a beautifully designed quilt made by the grandmother of one of the pupils, the appreciative side of art should usually supersede the creative. The child learns to look for the best ways of doing things, rather than to depend upon specific directions. Subject-matter in other fields is an essential part of art work. In order to design a frieze for a unit of work, research in the fields of geography and history is often necessary. Much of our information comes to us through pictures. English and art are closely related. The stories given below illustrate this.

Our Aprons

We sewed on our aprons today.

We hemmed them.

We shall put straps on them tomorrow.

(Grade 1)

Boats

We drew boats this morning.

Matthew drew a shad boat, Number 1.

Junior drew a yacht, Greensboro.

I drew a shad boat, Number 2.

(Grade 2)

Painting

We painted today.
We painted a chair and a frame.
We painted them orange.

(Grade 1)

Everette's Story

I made a bowl out of clay.
I put a top on it.
I painted it red.

(Grade 1)

A Lumber Boat

This boat is carrying a load of lumber to the mill in New Bern. The boat is out of gas. Two little boats are coming after the lumber boat to pull it to the mill. The life boat is tied to the side of the lumber boat.

(Grade 2)

Joyce's Story

Monroe drew a boat.
Irene drew a frieze.
It shows the children playing.

(Grade 2)

Dishes

Mary is making dishes.
She makes them out of clay.
She will let them dry three days.
Then she will burn them four hours.
The dishes will not break when they
have been burned.

(Grade 2)

SUMMARY

This chapter has outlined in detail the organization and use of art centers in the classroom. A wide variety of equipment has been suggested, in view of the fact that different materials are needed in different situations. Suggestions have been made for securing the necessary equipment. Creative art and appreciative art have been discussed from the standpoint of their development, use, and value in the school program. Standards for evaluating the work have been suggested, and expected outcomes have been listed.

BIBLIOGRAPHY

- Beust, Nora. *Graded Lists of Books for Children*. Chicago, American Library Association, 1930. 149 pages.
- Boas, Belle. *Art in the Elementary School*. New York, Doubleday, Doran and Company, Inc., 1924. 128 pages.
- Bonser, F. G., and Mossman, Lois C. *Industrial Arts for Elementary Schools*. New York, The Macmillan Company, 1923.
- Caffin, Charles H. *How to Study Pictures*. New York, D. Appleton-Century Company, 1928. 513 pages.
- Curriculum Bulletin No. 6 Art Education*. Raleigh, N. C., Raleigh Public Schools, 1929.
- Garrison, Charlotte G. *Permanent Play Materials for Young Children*. New York, Charles Scribner's Sons, 1926. 122 pages.
- Hartman, Gertrude, and Shumaker, Ann. *Creative Expression*. New York, The John Day Company, Inc., 1932. 350 pages.
- Lemos, Pedro J. *Applied Art*. Mountain View, California, Pacific Press Publishing Association, 1920. 379 pages.
- Mathias, Margaret E. *Art in the Elementary School*. New York, Charles Scribner's Sons, 1929. 180 pages.
- *The Beginnings of Art in the Public Schools*. New York, Charles Scribner's Sons, 1924. 119 pages.

- Matthews, William F. *Bookbinding*. New York, E. P. Dutton and Company, Inc. 252 pages.
- Plimpton, Edna. *Your Workshop*. New York, The Macmillan Company, 1926. 116 pages.
- School Arts Magazine*. 44 Portland Street, Worcester, Mass., The Davis Press, Inc.
- Stafford, Cora Elder, and Rucker, Pearl. *Art Appreciation Text-books*, Books I-VII. Chicago and New York, Laidlaw Brothers, 1930.
- Todd, Jessie, and Gale, A. Van N. *Enjoyment and Use of Art in the Elementary School*. Chicago, The University of Chicago Press, 1933. 134 pages.
- Wheeler, Ida W. *Playing with Clay*. New York, The Macmillan Company, 1927. 116 pages.
- Whitford, William G., Liek, Edna B., and Gray, William S. *Art Stories: Book One*. Chicago, Scott, Foresman and Co., 1933. 144 pages.
- Winslow, Leon L. *Elementary Industrial Arts*. New York, The Macmillan Company, 1922.

CHAPTER V

THE DAILY PROGRAM

THE DAILY PROGRAM is the series of events that takes place in the classroom during the school day. These events should be so arranged that the child participates in one interesting activity after another, passing from one to another without abrupt breaks, and in the process grows in the development of desirable knowledges, habits, skills, attitudes, and abilities. An important principle involved here is that children learn more effectively when they are interested in what they are doing; the school day should be filled with happy and worth-while experiences for each child in the room. The teacher must tentatively plan a daily program and be ready to revise it, adapt it, and often abandon it altogether in order that the work may be centered around the children's interests and based upon their needs. The organization of the daily program and its functioning, together with standards for evaluation and probable outcomes, are taken up in this chapter.

ORGANIZATION AND FUNCTIONING OF THE DAILY PROGRAM

In the organization of the daily program three factors in the situation should be considered: the child, the teacher, and the equipment. The purpose of the equipment is to stimulate the children to undertake interesting and valuable activities. It is the function of the teacher to select and arrange this equipment, to organize the work along general lines, to guide the children's activities through the individual

and group conference, to be alert to seize every opportunity to bring about desirable learnings on the part of the pupils, and constantly to evaluate the work done by the children. Children should initiate and plan many of their own activities and help to evaluate them.

The school day usually has four main divisions: activity period; appreciation period; health and recreation period; and drill period. The boundaries of these periods, however, are not fixed; the procedures for each are distributed throughout the entire school day.

An activity period in a daily program is a period in which the pupils may move around freely in an orderly manner, engaging in a variety of activities according to their interests. Activities may be carried on by pupils during other times of the day, but this period differs in that all pupils are engaged in a variety of activities and the teacher is giving her entire time as a guide.

One or more appreciation periods each day are desirable. These periods are used for such subjects as: folk dancing, literature, art, music, nature study, and dramatization. It is well to have definite provision made for these, although some of the best teaching along these lines is often done in connection with something else, or when unexpected opportunities arise.

Health and recreation experiences are important in the school day. Definite provision should be made in the daily program for health instruction, games and rhythms, and hikes. The rest period is a part of the health and recreation program in primary grades.

A drill period is often necessary to supplement the usual activities chosen by children. Needs for drill will arise while the children are engaged in various activities. The teacher should check often to see if her pupils are attaining proper skills in reading, arithmetic, spelling, etc., and sup-

plement by appropriate drills for the children who need them.

A first-grade program is given below and explained in detail. The time limits are only approximate, since a flexible program is essential.

A SUGGESTED PROGRAM FOR THE FIRST GRADE

8:30—10:15.—Activity Period

Preparation for the day

Planning

Work

Conference

10:15—11:15.—Mid-Morning Lunch, Health and Physical Education

11:15—12:00.—Reading

12:00— 1:10.—Midday Meal and Recreation

1:10— 2:05.—Rest and Appreciation

2:05— 2:25.—Special Remedial Work and Drill

Preparation for the Day.—Following is a description of the activities that usually take place during this period. The time apportioned to this period is only approximate; the time taken depends upon existing conditions. From ten to twenty minutes is the usual range for this period. Pupils go into the classroom informally. They put away their wraps, go to the toilet if necessary, wash their hands, read the bulletin board to see if any duties are assigned to them, and attend to these duties. Some of these duties are: watering flowers, feeding pets, arranging flowers, and filling in the attendance and weather charts. During this period some of the new materials brought in by the pupils or teacher are shown to the group, and usually discussed. These may be science materials, pictures, or materials to be used in a special unit of work being carried on in the room. If there

is something especially interesting happening in the community, such as a circus, or if a pupil has had an interesting experience, these may be reported by the pupils and sometimes discussed. Such reports often furnish the basis for many of the activities that follow. A sample first grade weather chart is given below:

Weather Chart

Yesterday was (Monday).

Today is (Tuesday).

Today is a (warm) day.

Today is a (cloudy) day.

It is raining today.¹

Planning Period.—This period is a necessary part of the activity period. It will usually take ten minutes or more, depending upon the situation. The pupils tell what they plan to do, decide who will work together, and what materials will be used. The teacher guides this discussion and makes notes about the work to be done. Here is an opportunity for her to guide the pupils so that they will complete the work started, take up worth-while activities, make use of available materials, and improve their standards of work. She will see that all are planning to work and are distributing their efforts so that there will be sufficient materials and adequate space for all to work.

Work Period.—This period will usually take from thirty to sixty minutes. The amount of time given to it naturally depends upon the amount of time used in preparation for the day and in planning for the work.

The pupils get out the materials to be used and arrange them for work. For example, the sewing stand is placed

¹ The words in parentheses are selected by the children each day from printed slips. These slips are put in pockets on the chart. Separate strips are used for the last line.

near a table and this becomes the sewing center. Clay and water are placed on the clay table; the work bench, hammers, nails, saws, and lumber are assembled in a suitable place; paints and objects to be painted are taken to a table covered with newspapers. Pupils prepare for work at easels and begin painting; others begin drawing on the board or reading in the reading center. All pupils are soon engaged in such activities as reading, writing, printing, sewing, painting, drawing, making objects out of wood or cloth, arranging or making use of the science collection.

This is usually the only period in the day when pupils are engaged in activities that are very noisy, such as hammering and sawing. The teacher moves about in the classroom while the pupils are thus engaged and gives encouragement and guidance where it is needed. By her questions she leads the pupils into better and more economical ways of doing things. Conversation among pupils is carried on quietly and informally. If a pupil wanders from one group to another without accomplishing anything, he is reminded of the unfinished task he had started and had planned to work on at this time.

At the tap of a bell, or some other signal, all stop the work they are doing and begin to clean up and put away materials and equipment. This usually takes about five minutes. As soon as the members of one group have their center in order, they sit as a group and have their work ready to display when they make their report.

Conference.—When the room is in order the teacher asks groups to prepare their reports. The fellowship is usually very close as they gather into informal groups according to the centers in which they have worked. The pupils make the story to be reported for the group and decide who will make the report. As soon as a group is ready to report, the members of the group seat themselves together and wait

until all groups are ready to report. As reports are given one after another, the children of the group reporting display their work, which is evaluated by teacher and pupils. The following remarks are illustrative: Pupil: "I liked her report because she did not put herself first. She said, 'Mary and I.' " Teacher: "What can you do to make your bowl look better?" This is probably the teacher's best opportunity to develop judgment on the part of the pupils and raise their standards of work. She does not tell them what to do but by skillful questioning she guides them so that they will be able to evaluate the work done and make plans for continuing it. She writes the stories in her notebook as they are given. She makes notes about the materials to be bought by various pupils. After all groups have reported, she reads from her notebook all of the stories reported. The pupils often vote to decide which story they like best. This story is written on the board and read first by the pupil who told the story, and then by the class and by several individuals. Often a story that was given a day or two previously is again read from the Activity Reading Chart. At this time a check is usually made to see if the pupils assigned to arrange the Attendance Chart and Weather Chart for that day have made correct reports. A sample first grade Attendance Chart is given below:

Our Class Record

Children in our class	33
Girls in our class	10
Boys in our class	23
Girls here today	9
Boys here today	20
Girls not here today	1
Boys not here today	3
Children not here today	4

Mid-Morning Lunch, Health and Physical Education.—

The mid-morning lunch is important for its health and social values. Health and physical education are closely interwoven with other activities and cannot be considered apart from them. Just before the time for outdoor exercise, games are planned for the playground, leaders are selected for the various games, and all leave the classroom except the four who are to serve the mid-morning lunch. While the others are playing in the yard, the necessary preparations for the lunch are made. The children arrange the tables and chairs so that about twelve may be seated at each table, and flowers are arranged and placed at each table. The napkins and dishes are put in the proper places. Crackers or cakes are placed in the bowls and the pitchers are filled with milk or water. One of the pupils announces to those on the playground that lunch is ready to be served. They return to the classroom, arrange their hair, wash their hands, and rest until all are ready for lunch.

If there are guests in the room, each one is invited by one of the pupils to sit at his table. When all are seated the children say or sing grace. After this the children who have been appointed to serve pour the milk and see that all are served. While eating the pupils carry on conversation with those at the same table. Before the pupils leave the tables some special entertainment feature, such as a story or song, may be given by them.

After the mid-morning lunch, those serving remove the cups, napkins, and crumbs. Rhythms usually follow the lunch period. Some kinds of rhythms are marching, skipping, galloping, prancing, creeping, and tiptoeing. Sometimes this period is used for the toy band. While the children are engaged in rhythms or practising in the toy band, two or more children wash the dishes.

Reading.—The special reading period is a time when the children read from books, and look at pictures in them. Reading is closely interwoven with the children's activities throughout the day, for they read labels for specimens, weather and attendance charts, directions on the bulletin board, and stories they have made about their activities. They read in small groups according to their abilities. Sometimes a group reads aloud to the teacher while other children are reading silently. At other times the teacher moves quietly around, checking on reading habits and giving help and encouragement where needed.

Lunch and Recreation.—This period includes the midday meal and free play. It becomes a laboratory period where children may form good habits of eating, washing their hands, going to the toilet, drinking water, resting, and engaging in free play. At this period good social habits are encouraged, and strenuous exercise immediately after eating is discouraged.

Rest and Appreciation.—About ten minutes will be needed for the rest period, which should be one of complete relaxation. Each child may get his rug, place it on the floor and stretch himself at full length. If rugs are not available, each child may relax at his seat with his head on the table or desk, and his eyes closed. The room should be darkened and soft music from the radio, phonograph, or piano used to aid relaxation.

After the rest period the children usually appreciate stories. Sometimes this is a period for oral pleasure reading by different members of the group. Each pupil is occasionally given the opportunity to read to the entire group. Reading at this time is considered a privilege. Children look forward to it and make special efforts to select interesting stories or poems and to present them well. At other times stories or musical numbers are dramatized.

Special Remedial Work and Drill.—The last period is devoted to individual or group needs, and the children practice to develop skills needed in their activities. Some of them may need to work on letter writing at this time. They may all learn a song or practice some of their rhythm band selections.

A SUGGESTED PROGRAM FOR GRAMMAR GRADES

8:30—10:30.—Activity Period

Preparation

Planning

Work

Conference

10:30—10:45.—Health and Recreation

10:45—11:00.—School Assembly

11:00—12:00.—Drill Period

12:00— 1:00.—Supervised Lunch and Recreation

1:00— 1:35.—Appreciation Period

1:35— 2:15.—Drill or Practice

2:15— 2:45.—Health and Recreation

2:45— 3:30.—Appreciation Period

Materials for the activity period may be arranged by the pupils and teachers in centers of interest as described in the first part of this book. Care should be taken that enough suitable materials are ready for the activity period; otherwise much time is wasted, and the pupils acquire bad habits of work. Pupils must be encouraged to form habits of using materials to the best advantage and not wasting them. Proper storage space should be provided. Window seats are excellent for this purpose, as also are closets, cabinets, and chests.

The activity period usually has four parts: the preparation for the day, planning period, work period, and confer-

ence period. The preparation period is necessary in order that various miscellaneous matters may be taken care of and the pupils may be physically fit and acquire the proper mental set toward the day's work. It is during this time that hats, rubbers, coats, and lunches are put away, books arranged, flowers watered, and live specimens cared for.

The planning period should be given to a discussion of plans for what is to be done during the work period. This should cover what is to be done, who will do it, how to go about it, and what materials are to be used. Pupils who are working together on a piece of work will probably wish to meet as a group during the planning period. Materials brought in should be discussed and listed and suggestions made for their use. From ten to thirty minutes will usually be sufficient for the planning period. Occasionally more time will be needed, especially when new units are being planned.

The work period follows the planning period. It usually lasts about three-quarters of an hour. During this time the children work to carry out the plans made during the planning period. Pupils should have opportunities for engaging in both group and individual work, since group work develops coöperation and individual work is needed to develop resources within the children. The teacher moves around and gives suggestions and encouragement where they are needed, but she should be careful not to kill the pupil's initiative by too much direction. She will have paper and pencil ready to note important points. The pupils should select their own activities, but any pupil who is slow to begin should be encouraged by the teacher. Pupils should be permitted to talk and move about freely and quietly without annoying others during the work period. They sometimes go to other rooms to examine books or other materials. Talking above the noise or calling from one group to an-

other should not be permitted. It will be noted that the activities during the work period are not always hammering, nailing, and sawing, but intensive research is often done by individuals or groups in the grammar grades.

Pupils should be engaged in worth-while activities. The child will be interested in many things, some valuable and some trivial. It is one function of the teacher to guide the pupil along the line of his worth-while interests and to discourage his trivial ones. She should also see that pupils do not form the habit of leaving unfinished work that should be completed.

The work period also includes special housekeeping duties, such as cleaning up and the arrangement and care of flowers, books, and materials. A bell or gong signal may be sounded when it is time to clean up.

Sometimes pupils at first work individually, but they tend to gravitate into groups. It usually happens that, after some time has elapsed, in addition to several small units there will be one big unit of work that engages the interests of nearly every pupil in the room. The teacher should watch for suggestions from the pupils about starting an activity and when such suggestions are made she should encourage them so that there will come to be related group activities instead of the miscellaneous activities that take place when an activity program is initiated.

The conference period serves to keep all pupils informed about the work that is being carried on; to evaluate the work with a view to improving it; to make further plans; to give the children training in judgment, initiative, responsibility, and desirable persistence; and to cause them to grow in a knowledge of subject-matter. About half an hour will be needed for the conference period. An informal arrangement of chairs is suggested. Immediately after the cleaning up period members of each group should be given an oppor-

tunity to meet and decide for themselves who is to make the report for the group. It is often an advantage for members of the same group to be seated together to make a report for their group since this tends to develop group responsibility.

In conducting the conference period the teacher or a pupil presides and calls for reports of work done. These reports should usually be given according to groups, since this encourages group activity and tends to unify the work. In the grammar grades many of the reports may be written. Sometimes a report will need to be supplemented by information from other members of the same group. If a report is not properly prepared, this group may be asked to go into the hall for further conference. Each group should report at least twice a week; some, such as clay groups, may report more often, depending upon whether or not there is special accomplishment. Groups should have their work at hand ready to display so that the class and the teacher may evaluate it.

After a report of the work done by a group has been given, and the work displayed, constructive criticisms should be offered by the teacher and the pupils. The former must be careful not to talk too much, but she should not neglect this opportunity to raise the standards of work in the room. The work should be evaluated according to its utility and beauty. Both teacher and pupils may comment favorably on such things as going ahead and doing things, working until a job is finished, helping someone else, working hard, doing work without being told, doing a good quality of work, and taking responsibility.

One check on the activity period is the conference, which has just been discussed. Another is the durability and usefulness of articles the children make, such as chairs, tables, and pottery. Also, each pupil should be able to tell about

any piece of work in the room. Pupils should be able to read quickly and easily the vocabulary used in activity work. If a pupil gets through too quickly, it may be an indication that the teacher is doing too much, the work is not difficult enough, or the material is not sufficient. Informal tests made by both teacher and pupils may be used to check on the work done. Written records which include: pictures of classroom groups working, lists of articles made, and large units described in a manner similar to those given in Part II of this book, may be kept by the pupils and teacher.

The activities discussed above provide opportunities for subject-matter learnings which may be listed under several heads. The most important of these are: oral and written language by means of reports, booklets, and original plays; silent reading in research work; science, particularly nature study; art; writing; arithmetic; and creative work in music and literature.

The appreciation period provides opportunities for appreciations in addition to those which arise in connection with other activities during the day. Social appreciations are developed during the lunch period, through school parties, and by working together on activities. Appreciation of the achievements and problems of other peoples of the earth comes through an understanding of their interrelationships brought out through large units of study.

Music appreciation may be developed in a number of ways. A wide variety of good phonograph records is available for use in schools. Pupils and teacher collect pictures and interesting information about the composer; tell interesting incidents connected with the selection being taught; play the record; discuss the information previously presented; play the record several times listening for certain things. Music appreciation should usually come as a part of a large unit of work. For example, when studying about

Italy the class would probably be interested in *Il Trovatore* and Italian folk games.

Opportunities should be provided for rhythms, dramatizations, and other forms of creative interpretation. After pupils have studied some phonograph records they may interpret others for themselves. The interpretations may be in story form or may be acted with the music. Dramatizations and verse choir work are valuable in developing literary appreciation. Children enjoy the verse choir work, sometimes referred to as choral speaking. References on this are listed under poetry appreciation at the close of this chapter.

Efforts should be made to encourage musical interests and talents in children. Musical instruction should be given in the school and opportunities provided for expression of musical abilities developed outside of school. This includes singing, whistling, playing a harp, banjo and other instruments. Nearly all communities, and sometimes families, have folk songs. A collection of these folk songs will be interesting and useful for the school library.

The health and recreation periods provide for a variety of experiences. Among these are science through field trips, rest periods, lunch periods, and music interpretation.

A special lunch period may occasionally be planned for a grammar grade. This provides opportunities for social experiences and the teaching of good health habits. If used once a month, it may be developed as a unit of work which will bring in many activities relating to decoration, food, and entertainment. Some of these are: proper arrangement of flowers, the making of menu cards, the selection and preparation of food, after-dinner speaking, and other forms of entertainment.

One or more drill periods are included in the daily program. They provide for drill needed in grammar, arith-

metic, writing, spelling, and music that is concerned with the learning of songs and the study of the fundamental principles. The amount of time given to drill varies according to the needs of the class.

STANDARDS FOR EVALUATING THE DAILY PROGRAM

One important check on the daily program is the amount and continuity of interest displayed by the children. The teacher should examine their reports and creative work and make sure they are growing in desirable knowledges and skills. The books and other things they make are evidence of their progress. She should examine her observation records to determine whether or not the children are growing in initiative, coöperation, judgment, desirable persistence, and responsibility. Much of the work should center around some unified projects and have numerous interrelationships among the various subjects. If satisfactory progress is shown along the lines indicated above, she can be reasonably sure that her daily program is functioning adequately.

OUTCOMES

One outcome that may be expected is that the pupils will look upon the school as a pleasant place to live, not merely a place in which to prepare to live. This attitude is not limited to the pupil but is characteristic of the teacher also. Another result to be expected is that the pupils will more effectively acquire knowledges, habits, skills, and abilities in tool subjects. Subject-matter should function in a related way through large units. Still another outcome is that a daily program of the kind outlined above will provide for growth along more varied lines, particularly in the formation of desirable social and physical habits.

SUMMARY

This chapter contains a description of the daily program, from the standpoints of organization and functioning. Activities of the school day have been enumerated and described. Suggested daily programs for both primary and grammar grades have been given and explained in detail. Standards for the evaluation of the daily program have been set up and some probable outcomes have been listed.

BIBLIOGRAPHY

- Ferrière, Adolph. *The Activity School*. New York, The John Day Company, 1928. 339 pages.
- Hill, Robert. *A Teacher's Guidebook to the Activity Program*. New York, The Macmillan Company, 1932. 257 pages.
- Melvin, A. Gordon. *The Technique of Progressive Teaching*. New York, The John Day Company, 1932.
- Wright, Lula E. *A First Grade at Work*. New York, Bureau of Publications, Teachers College, Columbia University, 1932. 247 pages.

POETRY APPRECIATION

- Gullan, Marjorie. *Choral Speaking*. Boston, Expression Company Publishers, 1931. 90 pages.
- *Spoken Poetry in the Schools*. London, Methuen and Company, Ltd., 36 Essex Street, W. G. 116 pages.
- Hooper, John. *Poetry in the New Curriculum*. Brattleboro, Vt., Stephen Daye Press, 1932.
- Keppie, Elizabeth E. *The Teaching of Choric Speech*. Boston, Expression Company Publishers. 149 pages.
- Seely, Howard Francis. *Enjoying Poetry in the School*. Richmond, Va., Johnson Publishing Company, 1931. 267 pages.
- Tuttle, Florence Piper. *Poetry Patch House*, "The Poetry Readers." Brattleboro, Vt., Stephen Daye Press, 1933. 132 pages.

MUSIC AND PHYSICAL EDUCATION

- Anderson, Leonora, and McKinley, Florence. *An Outline of Physical Education for the First and Second Grades*. New York, A. S. Barnes and Company, 1930.
- Coleman, Satis N. *Creative Music in the Home*. Valparaiso, Indiana, Lewis E. Myers and Company, 1927.
- Cross, Donzella. *Music Stories for Girls and Boys*. New York, Ginn and Company, 1926.
- DeForest, Glenn. *Music Appreciation for Every Child*. New York, Silver, Burdett and Company, 1926.
- Duggan, Anne Schley. *Tap Dances*. New York, A. S. Barnes and Company.
- Horrigan, Olive K. *Creative Activities in Physical Education*. New York, A. S. Barnes and Company, 1929.
- Kinscella, Hazel Gertrude. *Kinscella Readers*, Books I-VI. New York, University Publishing Company, 1930-32.
- McConathy, Osbourne, Miessner, W. Otto, Birge, Edward Bailey, and Bray, Mabel E. *Music in Rural Education*. New York, Silver, Burdett and Company, 1933.
- Thomasine, C. McGehee. *People and Music*. Boston, Allyn and Bacon, 1931.
- Whitlock, Virginia Bennet. *Come and Caper—Creative Rhythms, Pantomimes and Plays*. New York, G. Schirmer, Inc., 1932.

CHAPTER VI

THE CURRICULUM

FORMERLY COURSES of study listed subject-matter to be taught; the newer-type curriculum guides give descriptive examples of educational activities that have been successfully carried on in a particular situation.

A study of the materials and procedures for teaching in the public schools, from colonial days to the present, shows a growth and development comparable to the improvements in transportation over the same period of time. The changes in reading may be easily seen by examining rare copies or reproductions of hornbooks, *The New England Primer*, and McGuffey's readers and then comparing them with present-day readers and reading materials developed from children's activities.

DEFINITION

The modern curriculum is a living, growing program made up of the educational activities of the children. These experiences are conditioned by the environment of the children and are based on their interests. The following of these interests leads to new interests, and subject-matter from all fields is used as a means, not as an end.

HISTORICAL DEVELOPMENT OF THE CURRICULUM

In early days there were no elaborate courses of study. Teachers were elected to teach subject-matter to the children. This subject-matter was found in textbooks selected by local boards of education. Later these books were

selected for larger units, such as districts, cities, or counties, and finally, in some cases, even for states, and were selected according to provisions made in the state laws.

At first it was not difficult to select books, for the Three R's almost covered the program, but as time went on and life became more complex, many new subjects came into the schools. Elaborate courses of study were planned to include these new subjects. Soon one textbook was not considered sufficient for such studies as reading, history, and geography; so the courses of study listed basal books, supplementary books, and reference books. These additional books helped the situation, but it was still impossible for all children to progress at the same rate of speed. In order to meet this difficulty, minimum and maximum essentials were added to courses of study. But even that did not solve the problem, for it failed to recognize the importance of individual interests and the emphasis was still on the subject-matter. However, the establishing of minimum and maximum essentials showed growth, for it recognized the fact that all children do not learn the same amount of material and they do not learn at the same rate.

Gradually, industrial conditions and compulsory school attendance laws forced children to stay in school longer. They were not allowed to leave school and go out to find something they could really do, something in which they could feel that they were succeeding. It followed that many children who failed to be promoted one or more times became problem cases. These problem cases were continually coming up, both among those who could, and among those who could not, learn the required subject-matter. Thus child study became an important phase of the teacher's work. Experiments carried out under special conditions showed that children may engage in a variety of educational activities and attain different levels of success.

As a result of all this, accurate knowledge of a given amount of subject-matter is no longer considered adequate preparation for teaching. The teacher must know something of the growth and development of children and be prepared to adapt her procedures to meet their needs mentally, physically, and socially.

In the activity program the emphasis is upon the child. He is considered in relation to his environment. School is a place in which to develop his total personality; and subject-matter, though it plays a vital part in the activity program, serves mainly as a means toward that end.

ADAPTING A COURSE OF STUDY

A state or local course of study need not prevent the undertaking of activities, but it may tend to limit their scope and the amount of time involved. If the first-grade teacher is initiating an activity program under a school system which has an adopted course of study with certain requirements, such as a study of homes in the first grade, she may give some time to that subject during the year and let the amount of time used be determined by the interests of the children. It is a rare thing now, in case it exists at all, for a course of study to be rigid in the exact amount of time given to a particular topic. If the course of study gives certain requirements in English, these requirements may prove a help to the teacher in checking the progress made. If she is having the right kind of oral and written English in her units, she will usually be doing more than the course of study requires. If certain literary selections are required and they are not included in the unit of work they may be taken up during the appreciation period. If the second grade is required to study about the Dutch and the children are interested in something else, they may follow their special interest as a unit, and stories about Holland may be

used for some group reading. These may lead to an interest in a study of Dutch life. In the grammar grades much of the required subject-matter in the fields of social science will naturally be used in the large units that grow out of children's interests. For example, a study of records will lead them to use materials which will give them much information about the customs of ancient people. The activities involved, such as planning the unit, seeking information, making reports, preparing outlines, and keeping various types of records, develop reading skills, require wide reading, and improve English usage. In addition to the use of subject-matter, there is the opportunity for character development which comes from planning and working together. In almost any situation the important thing is for the children to be happy and to grow mentally, physically, and socially. The teacher who attains these results and who has the proper attitude toward the school and community will have little cause for worry.

Some courses of study require a specified number of minutes to be given to certain subjects. If this specified time for each of several subjects must always be considered as a distinctly separate period the situation is more difficult but not entirely hopeless, for the teacher may arrange to use those periods for subject-matter needed in the unit. In planning the daily program it may be arranged so that the periods for the subject-matter in closely related fields are grouped consecutively, thus avoiding abrupt breaks in the activities. If, in carrying out his activities, the child feels the need for drill, such drill will be much more effective.

A variety of materials is important in an activity program. Adopted textbooks, supplementary books, and various types of reference books are useful. If the required texts are purchased by pupils and their funds are limited it is well to ask small groups of pupils to purchase different texts and share

them so that all may have a variety of material at minimum expense. It will be noted that the tendency now is to have a greater variety of texts within the grade, rather than to require each pupil to have the same text. If each child will donate one book to the school each year and if the books are wisely selected, the classroom library will soon become a source for information in the activity program and an enjoyable place for reading and research activities.

As a teacher gradually develops an activity program and grows in a feeling of security, it is wise to share the program with the parents and other school patrons. This may be done through exhibits, through public programs based on large units of work and other special phases of the school program, such as creative work and work developed in the special periods for cultivating appreciations, and through personal conferences.

THE CURRICULUM FOR AN ACTIVITY PROGRAM

Many professional books and magazine articles have been published on the subject of the curriculum for an activity program. They have been helpful to administrators, supervisors, and teachers. In a mimeographed article recently issued, a curriculum for an activity program has been briefly and clearly described by Wilson S. Dakin, Senior Supervisor of Rural Education, Connecticut State Board of Education. The article is reprinted here by permission from Mr. Dakin.

THE CURRICULUM FOR AN ACTIVITY PROGRAM

BY WILSON S. DAKIN

A curriculum must grow from selections for study taken from the environment, local and contemporary. These

should be subjects that will yield the most worth-while experiences and information rather than units of knowledge logically complete. The basis for selection should be material that appeals to interests of children universally recognized at various levels of maturity.

Sources of material for study should be phases of environment near to the child in time and space. Study and discussion will lead from these to origins which open the way to history; questions regarding usage and customs which will suggest studies of other lands. These elements taught with due understanding of child nature, will provide many opportunities for imagination and creative activities.

The extent and variety of subjects chosen, and the resulting experiences possible must be determined by each teacher in her own community, with her own children. This material, too, must vary from year to year, as affected by seasonal changes, local happenings, and the development of science, invention, and ways of living.

Methods of organization and teaching should in general be based on principles of guidance rather than overt instruction. Skills essential to efficient study and expression such as reading, composition, penmanship, art, music, handicraft, and foreign languages, should be acquired through practical usage in situations meaningful and necessary to the child. When these conditions fail to give practice sufficient for facility in these arts, special periods must be provided. These, however, should be motivated by real need and not carried so far that their function becomes vague to children.

Knowledge will be measured by the understanding of his environment which the child expresses according to his age and mental maturity. He will not be penalized for failure to know pre-selected material, but credited with quantity and richness of information in fields with which his inter-

ests have led him to become familiar. Other measures of success will be the child's will and ability to study both as an individual and as the coöperating member of a group.

Teachers or groups of teachers in a given graded school must know

1. The age levels of development.
2. The recognized interests of each level.
3. The recognized capacities of each level.
4. What experiences children have had at each level.

This information acquired in general training and experience with children will serve as basis for judging individuals. In addition to this teachers must know the resources of each particular community. These resources are generally found in the fields of

1. Nature and physical science.
2. Social life of children and adults.
3. Industrial life.
4. Historical development.

Curriculums as usually developed are almost entirely objective. The pupil is guided through a series of studies and experiences designed to help him become familiar with his environment.

Equally important may be those subjective elements that guide the learner toward a better knowledge of himself. In this category would be matters relating to physical and mental health, recreation, and social adjustment. This material should be organized into programs covering these fields. Such programs must of necessity be intimately tied in with community programs and resources in the same fields.

The problem of curriculum building then will be to develop with each class each year, projects for study, experiment, and creative expression. These projects should be

based on units of interest found worth while to the class as a whole, and sections within that group.

Teachers must provide for individual differences in interest, talent, and rate of learning through sub-units that will give scope to desire and talent for expression in music, art, literature, handicraft and dramatization.

Due recognition of *age levels* and *changing viewpoints* will suggest the value of *recurring studies*, each, however, attacked from a *new* viewpoint.

The above principles are submitted as a guide for curriculum development by teachers. When several work in the same building or district through which a given group of children must proceed from year to year, there must be coöperation to insure a proper variety of experience *progressively graded* for pupils whose education is spread through several classes over the years of their elementary education.

February 28, 1934.

As the activity program develops, grade lines based on subject-matter divisions become relatively less important. The yearly promotion problems begin to vanish when school is considered a place where children may have so many years of educational opportunity and where different levels of success are recognized according to individual differences. From year to year children move along with other children of the same chronological age and each makes a contribution to the activities. These contributions are naturally limited according to the experiences and mental abilities of the children.

EVALUATING PUPIL PROGRESS

Standard tests may be used to advantage, but they must be considered as only a partial measure of progress. They

do not take into account teachers' judgment and they fail to measure some of the most important learnings which children acquire through their experiences in educational activities. Pupil progress is shown by the actual work he accomplishes. His contributions appear in records of the unit activities, in booklets, in wall hangings, pictures, models, and various types of equipment which he has made or helped to make. In addition to records that are really a part of the activities, both teacher and pupil may keep an individual folder with samples of the pupil's work showing different levels of achievement. These records tend to take the place of the old marking system. They are available for examination so that actual accomplishment may be seen. Parents may also, by informal conversations with children outside the classroom, by talking with them in the classroom about their activities, and by attending programs which grow out of their classroom activities secure accurate information concerning the accomplishments of their children.

SUMMARY

The historical development of the curriculum has been briefly outlined. Suggestions have been given for adapting a course of study to an activity program. The curriculum for an activity program has been described and ways of evaluating pupil progress have been given.

BIBLIOGRAPHY

- Beechel, Edith E. *A Citizenship Program for Elementary Schools*. New York, Bureau of Publications, Teachers College, Columbia University, 1929. 170 pages.
- Burke, Agnes, and Others. *A Conduct Curriculum for the Kindergarten and First Grade*. New York, Charles Scribner's Sons, 1923.

- California Curriculum Commission. *Teacher's Guide to Child Development*. Sacramento, California, State Department of Education, 1930.
- Charters, W. W. *Curriculum Construction*. New York, The Macmillan Company, 1923.
- Clouser, Lucy Weller, and Millikan, Ethel Chloe. *Kindergarten Primary Activities Based on Community Life*. New York, The Macmillan Company, 1929. 307 pages.
- Clouser, Lucy Weller, Robinson, Wilma J., and Neely, Dena Lois. *Educative Experiences Through Activity Units*. Chicago, Lyons and Carnahan, 1932. 325 pages.
- Davis, Sheldon Emmor. *Teaching the Elementary Curriculum*. New York, The Macmillan Company, 1931.
- Dewey, John. *The Child and the Curriculum*. Chicago, The University of Chicago Press, 1902.
- Finley, Charles W., and Tippet, James S. *Field Work*. New York, The Lincoln School of Teachers College, 1925. 122 pages.
- Glass, J. M. *Curriculum Practices in the Junior High School and Grades V and VI*. Chicago, The University of Chicago Press, 1924. 182 pages.
- Harap, Henry. *The Technique of Curriculum Making*. New York, The Macmillan Company, 1928. 315 pages.
- Hill, Robert. *A Teacher's Guidebook to the Activity Program*. New York, The Macmillan Company, 1932. 257 pages.
- Keelor, K. L. *Curriculum Studies in the Second Grade*. New York, Bureau of Publications, Teachers College, Columbia University, 1925.
- Meriam, J. L. *Child Life and the Curriculum*. Yonkers-on-Hudson, N. Y., World Book Company, 1921.
- National Society for the Study of Education, Washington, D. C. *Fourteenth Yearbook*, Part I, 1915; *Sixteenth Yearbook*, Part II, 1917; *Seventeenth Yearbook*, Parts I and II, 1918; *Eighteenth Yearbook*, Part II, 1919; *Nineteenth Yearbook*, Part I, 1920; *Twentieth Yearbook*, Parts I and II, 1921; *Twenty-second Yearbook*, Part II, 1923.

- Porter, Martha Peck. *The Teacher in the New School*. Yonkers-on-Hudson, N. Y., World Book Company, 1930. 312 pages.
- Staff of Lincoln School. *Curriculum Making in an Elementary School*. Boston, Ginn and Company, 1927.
- Stevens, Marion Paine. *Activities Curriculum in the Primary Grades*. Boston, D. C. Heath and Company, 1931. 440 pages.
- Storm, Grace Emily, and Smith, Nila B. *Reading Activities in the Primary Grades*. Boston, Ginn and Company, 1930. 376 pages.
- Wright, Lula E. *A First Grade at Work*. New York, Bureau of Publications, Teachers College, Columbia University, 1932. 247 pages.

CHAPTER VII

CONTACTS BETWEEN HOME AND SCHOOL

THE ACCUMULATION of scientific data in child study has made evident the necessity for closer contact between the home and the school. Children's problems usually have their origin in the home in early years, and the parents' coöperation is needed for changing environments, for developmental work, and for treating maladjustments which have already arisen. Since the teacher has a wide knowledge of many children, gained by scientific study and observation in school situations, and the parent has an intensive knowledge of a few children, gained by observation in the home situation, it is usually valuable to pool their information for the purpose of understanding and caring for the needs of children. The work of both home and school will be more effective if there is a harmony of goal and method, and this can be brought about by a better understanding, on the part of each, of the activities of the other. There are many organizations among educators and parents working for a better relationship between home and school, and new methods are being developed to meet this need. A pre-school visiting day has been found useful in bringing the school and home closer together in caring for children's needs. This type of program and other useful types of home-school contacts are described in this chapter.

A SCHOOL DAY FOR PARENTS AND PRE-SCHOOL CHILDREN

A general visiting day when the incoming first graders and their parents may observe an actual school day under

favorable circumstances can be an interesting and practical part of the school program. The purposes of arranging such a program are to build in the child a favorable attitude toward school, secure needed data about the child, and give the parents an opportunity to secure first-hand information about the life of the school.

PREPARATION

Some time before the date selected, a complete list of the children who will be old enough to enter school the following term should be compiled. This may be secured by consulting the official census; by asking school children about younger brothers and sisters who are to enter school next year; by visiting homes to secure these names; by writing to parents or sending out blank forms on which may be listed all pre-school children who will be of school age the next year. It is appropriate that the pupils who are completing the work of the last grade in the school should compile this list and so do their part in introducing the pre-school youngsters into the school which they are leaving. A simple blank upon which to list the names, ages, parents' names, and addresses of the pre-school children should be provided by the school. One copy of the list should be in the hands of the teacher, one in the hands of the principal, and one sent to any other administrator who is to participate in the program.

A letter containing a special invitation should then be sent to each prospective school entrant and one to his parents. This letter will contain a special invitation for them to be present on the visiting day and will mention some of the attractive features of the program. These letters may be mimeographed and mailed out, or they may be written by the children as a part of their school work and later carried home.

Parents may be informed through talks and announcements made at parent-teacher meetings, and local papers may carry articles concerning the visiting day, and a report following it. If visiting days are being arranged for a whole system of schools, it is well to have a general newspaper article before the series of visiting days, and one after each program, following these with a summary article about the programs in all the schools.

The teachers should work with a unity of purpose in preparing for the visiting day. They should do everything possible to secure a large attendance and should carefully arrange their work in order that the visitors may enjoy the day. Work done by the children should be on display. Every child in a grade should be prepared to tell about the special work done in that grade and explain about the things in the room, such as science materials, pictures, and things made by the children. Each room will probably enjoy keeping a list of its visitors. In planning lessons for the day it will be best to plan activities which will not require a long period of time, since visitors coming and going will necessarily interrupt the regular program of work.

THE PROGRAM FOR THE DAY

The program in the first-grade room is most important because of the presence of the prospective school entrants. It is a good plan to include the visiting children in the school activities if possible. A little booklet or some type of favor, prepared beforehand by the first grade, may be given to the pre-school child to take home. Often a simple party planned with the pre-school children as guests of the first grade adds a great deal to the success of the day.

In planning the assembly program it is well to have several grades represented, since in this way more parents will be interested in attending. Small children will enjoy folk

games, rhythms, songs, short dramatizations, whistling, solos, string music, and harmonica music. The assembly program may well be held just after the morning recess, since this is the time when most of the visitors are present.

Parents are always interested in playground activities. Part of the recreation time may be given to folk dancing, group games and stunts by individual children.

The reception committee should prepare themselves beforehand for the work they are to do. Plans for this day should be discussed with the children and a special group appointed to serve as guides. These guides should inform themselves about the work in every classroom and be prepared to tell the visitors about any of the following points: new equipment added for the stage or playground, improvements made in the school yard (this includes the names of shrubbery and trees on the grounds), the name of each teacher, grade or grades in each room, number of pupils in each grade, and the titles of large units of work being carried on in each classroom.

The reception committee will meet the visitors at the door and register their names, answer any questions, and guide them to the rooms which they wish to visit. At the assembly period all should meet in the auditorium to enjoy the program prepared by the children. Playground activities may be observed at recess and the five-year-olds may enjoy taking part in the games. A good time for the first-grade party is probably just before lunch. Usually a picnic lunch brought by the patrons may be arranged so that the occasion becomes a social one.

THE PRE-SCHOOL CLINIC

The pre-school clinic may be a feature of the visiting day. The following special equipment will be needed: a table, four chairs, pens, ink, blotter, scales, yardstick or new

..... Last name First name Name of Child Date of Examination
 Sex Age: years months School
 Home Address Distance from School miles

I. FAMILY HISTORY

FATHER			MOTHER	OTHER RELATIVES		
Name	Name	Living	Name	No. brothers	No. brothers	No. brothers
Living	Living	Age	Age	Ages	Ages	Ages
Education	Education	Education	Education	Health	Health	Health
Occupation	Occupation	Occupation	Occupation	No. sisters	No. sisters	No. sisters
Health history	Health history	Health history	Health history	Ages	Ages	Ages
Comments:	Comments:	Comments:	Comments:	Health	Health	Health
(Time, care, friendliness, sympathy, enjoyment, discipline, child's response.)	(Time, care, friendliness, sympathy, enjoyment, discipline, child's response.)	(Time, care, friendliness, sympathy, enjoyment, discipline, child's response.)	(Time, care, friendliness, sympathy, enjoyment, discipline, child's response.)	Other relatives in home	Other relatives in home	Other relatives in home
.....	Home life (general atmosphere)	Home life (general atmosphere)	Home life (general atmosphere)

II. DEVELOPMENTAL HISTORY

A. PHYSICAL

Height	Muscular activity	Voice: clear....obstructed... ..	Nervous habits: speech defects
Weight	Skin color	Defects	Thumb sucking
Annual gain	Subcutaneous fat test on under arm	Sleep and rest: No. hrs.....	Nail biting
Posture: good.... poor....	Eyes: vision good... poor...	Good sleeper	Restlessness
Defects	Ears: hearing good... poor...	Rest during day	Enuresis
Head erect	Tonsils	Eating: sufficient intake.....	Summary: physical maturity
Straight legs	Breathing	No. meals	Normal growth
Back straight	Speech: distinct	Hours of meal.....	General development
Good arches	Speech: plain	Food dislikes	Comments
Skeleton adequate for weight, height and size..		Amount milk per day...	

B. MENTAL

Mental age	Knowledge of everyday facts:	Vocabulary: Average	Distinguish between—
I. Q.	His age	Above average ..	Truth and falsehood....
Tests used	Birthday	Below average	Make-believe and real..
Knowledge of rhymes	Parents' names	Responds to reasoning	Ability to plan
Of stories	Parents' address	Self-control	To complete task.....
Of songs	Days of week	Desire to know things.....	Coöperative
Of games	Time of day	Curious about things.....	Comments
	Pronounced likes and dislikes		

C. Social.

	*M	A	L	
Respects the rights and property of others.....				Happiness
Shares in home duties and responsibilities				Obedience
Gets along well with other children				Stubbornness
Likes to play alone.....or with others.....				Affectionateness
Responsive when spoken to				Independence
Is there companionship during waking hours?				Resourcefulness
With childrenwith adults.....				Assertiveness
Reaction to companions				Persistence
Has the child been very much alone?.....				Showing off
Reaction to being left alone				Irritability
Comments				Sensitiveness
.....				Timidty
.....				Self-reliance
.....				Special fears.....

*M—marked; A—average; L—lacking. Check in column.

VIII. CLASSIFICATION

School Year	(Check)..... Junior-Primary Group; First Grade, Section I (First half year), Section II (Second half year) Unclassified Specialists.	Teacher
19.....19....		

tape measure, toxin-antitoxin, sterilizer, soap, and towels. In addition, an information blank will be needed for recording data pertaining to the school entrant. A type of information blank is given on pages 98-99.¹

Those assisting in the clinic should meet for a few minutes to decide upon special duties. Then the history of each child should be taken, using a card such as the one given here. If possible, the teacher of the first grade or the supervisor, or both, should confer with the parents in taking the history of the child, since this is a good opportunity to get acquainted with the parent and learn further interesting information about the child. There should be a physical examination of the child, including weighing and measuring, given in the presence of the parents. Following this the doctor may consult with the parents concerning his findings and offer any necessary advice. The school nurse or someone else should record on the history cards all the findings and the advice given to the parents, making sure that the parent understands and knows how to carry out the advice given. This clinic affords a good opportunity for giving vaccinations. It is a good idea to have the vaccination done at this time if possible so that any illness or soreness in arms will be over before school opens.

It is an advantage to have the pre-school clinic on the same day that the regular visiting day is held, but it sometimes makes a rather full program. This can be prevented by beginning the interviews and examinations as soon as the first pre-school child and his parents arrive. Several children may be taken into the clinic at the same time, so that each of those participating in the clinic may each be working with a child. It is suggested that one member of the reception committee be delegated to find out which vis-

¹ This card was prepared by Hattie S. Parrott, State Department of Public Instruction, Raleigh, N. C., and is published here with her permission.

itors have children who are prospective school entrants, take their names, and locate each one when there is an opportunity for an interview.

STANDARDS FOR EVALUATING THE VISITING DAY

The teacher will wish to have some basis upon which to estimate the effectiveness of the visiting day in her school. The number of people attending in relation to the size of the community is a most important indication of success. Special note should be made of the number of prospective school entrants and their parents who are present. The nature and number of the comments of these visitors both during the day and later will be indications of the value of the day in the school program. The attitudes of the visiting children, as indicated by their behavior, is also important.

If modern principles of education have been demonstrated, if the program has run smoothly, and if there has been a general spirit of enjoyment and good will, the indications are that the program has been a success.

Another standard by which to measure the success of the day is the quantity and quality of information obtained. The aim should be to obtain full and definite information about the physical, mental, and social nature of all the children who are expected to come to school the next year.

One of the most important outcomes to be expected is increased interest on the part of school patrons, teachers, and pupils graduating from the school. Better acquaintance with the school program should result in a sentiment for good schools. Another outcome is a better opportunity to provide for the school entrants because of the early census. The first-grade teacher will be in possession of information that will make her understand much better the nature and needs of each individual and will aid her in planning the

school program to meet these needs. Better school attendance of first-grade children and a corresponding decrease in retardation may be results of the visiting days. This better attendance is brought about by the pupil's favorable attitude toward school, the parents' increased interest, and by the fact that the pupil does not suffer from illnesses usually due to vaccinations and some physical defects.

A PROGRAM FOR PARENTS

Another type of home-school contact is the program for parents arranged at some time other than regular school hours. A program of this kind usually includes an exhibit of school work, a program by the children, and sometimes a reception or a lecture on an educational topic.

UNIT PROGRAMS

Unit programs have been given with good results in many schools. At the close of a unit of study the children arrange a program based on this unit for their parents and other children. The work that has been done is shown and processes and techniques learned are explained. Dances and songs learned in connection with the unit are also given. Sometimes there are songs, games, and dances created by the children. Some unit programs have brought in parents to explain processes, such as weaving, that they taught the children for use in the unit of work. In this way, the parents learn to understand the program of work and see that their children are learning reading and arithmetic as well as social attitudes. The exhibits with booklets giving lists of references read are further evidence of this. These unit programs should help the parents to become more interested in the child's accomplishments at different levels and less interested in having him surpass other children. They should become more interested in the kind and quality

of work than in school marks. It is a good sign when parents talk together about the activities their children are engaged in rather than about marks. The teacher will recognize the parents' interest and try to develop it by securing information from them for use in unit work, having children take home their booklets to read to parents, and so on. The parent finds out about school by noticing the attitude of the child at home and examining the work he does and brings home.

THE PARENT STUDY-GROUP

Well organized, wisely directed parent-teacher or home-school associations further home-school contacts. They should provide a program of parent education, parent participation in school activities, and a close coördination of the training given in home and school. The parent study-group, for the study of child psychology and parent-child relationships has proved a useful part of the parent education program. These groups are usually led by parents, but the teacher can do much to stimulate their organization and foster their growth.

SCHOOL PUBLICATIONS

School newspapers and other school publications make for better relationships between the home and school. Many schools issue to parents a manual which gives information regarding the school and its program.

INFORMAL CONTACTS

There are many informal contacts between home and school. The parent comes to school or meets the teacher informally on the street and talks with her about the needs of his child, or the teacher makes a visit to the home. A friendly, understanding attitude on the part of the teacher

will do much to secure the parent's help and build good feeling between home and school. The teacher will do well to plan her visit to the home in order that she may secure information of value and work with the parent in making plans for the child. Before going to the home the teacher should review information she already has about the child and decide what questions she can tactfully and profitably ask to secure other information useful in caring for the needs of the child. Immediately after the visit, she should set down significant information gained and plans worked out with the parent.

SUMMARY

In this chapter several types of home-school contacts have been described. The pre-school visiting day has been fully discussed, giving purposes, plans, suggestions for carrying out the program, plans for the clinic, suggestions for evaluating the program, and outcomes.

PART II

LARGE UNITS OF WORK

CHAPTER VIII

GUIDING THE DEVELOPMENT OF LARGE UNITS

MANY TEACHERS feel that a large unit of work is an addition to the subjects in the curriculum, when in reality it is a unifying force and vitalizes subject-matter as it is used to solve problems. Fact material is learned in actual situations where relationships are evident. Questions such as the following are raised by teachers: "How can I start a good unit?" "How can I get in the subject-matter?" "What type of daily program is best suited for this type of work?" "How can I tell when the unit is being carried on in a worth-while way?" "What are some results I may expect?" The purpose of this chapter is to help the teacher with these problems.

DEFINITION

A unit of work includes all of the things children do when working on one particular problem. These usually involve a number of problems or projects related to the central problem. Large units of work should be distinguished from units of work in a particular subject such as geography, which have to do with grouping the materials of the subject into a series of units. The large unit is a broader term, and it includes subject-matter from many or all subjects in the curriculum. The experiences children have while working on a large unit necessitate the use of subject-matter and provide situations where social habits may be developed.

INITIATING A UNIT OF WORK

Units of work originate in different ways. A question arising in the classroom often causes pupils to wish to solve certain problems. The teacher may stimulate interest in significant topics by placing the pupils in contact with materials that will stimulate their interest. Some suggested materials for this are pictures of many kinds, books, clippings, and talks by the teacher or other persons. For example, if the teacher feels that it is worth while to have her pupils study transportation, she may post on the bulletin board pictures of different modes of transportation and clippings relating to the topic. Pupils should be encouraged to bring to school as many materials as possible. These may be posted on the bulletin board, used by the class in making things, or put into a permanent exhibit. All should be carefully classified and the most valuable made a part of the permanent files, so that they may be easily available. These files should also contain references to library books and textbooks from various grades. It is important that pupils be given opportunities for informal discussions of the materials on the bulletin board. During these discussions the teacher should carefully record the pupils' questions and watch for a desire on their part to study the topics. An informal talk on modes of travel by a naval recruiting officer, a station agent, or someone else outside the group, will create interest. Many questions and suggestions will arise, and the teacher should guide the pupils to choose the most valuable for further study. The teacher usually provides some stimulating materials, but best results are obtained when children choose their own units of work.

At the beginning of a unit of work the class and the teacher working together should decide what they wish to accomplish. It is necessary to outline the big problem and

other problems in minor activities, though these problems may change somewhat as the unit develops.

CARRYING ON THE UNIT OF WORK

The daily program should be arranged to include a special activity period. For a full discussion of the organization and functioning of a daily program see Chapter V.

A tentative outline of a unit of work is important as a guide but it should be used in such a way that the teacher and the pupils are not prevented from using their own ideas. Besides the outline made by pupils and teacher working together, the latter should carefully think through the problems and list related problems and activities, in order that she may give effective guidance no matter what direction the study may take. The outline should be worked out by teacher and pupils after the big problem for study has been selected. It may be arranged under some such heads as the following:

1. Big problem for study.
2. Questions raised by the pupils.
3. Possible activities in subject-matter fields.
4. Probable materials needed.
5. Group organization and pupil responsibility.
6. Probable outcomes.

The outline will need constant revision as the study progresses. At the conclusion of a study that has proved worth while, a detailed written account of the above points, including a sixth—suggestions for future study—should be put into the school file, and the teacher may want a copy for her personal files.

It is desirable to have some manual activities in connection with a unit of work. Some suggested activities of this kind are: making friezes, booklets, posters, and scrap-books.

Making costumes and stage scenery for a program developed in the unit may be of value.

The conference period is important in carrying on a large unit. Since the members of the class are working on various phases of the unit, they are all interested in its development. Reports are needed from group and individuals for evaluating the work, planning new steps, and unifying the work of the class.

EVALUATION OF THE LARGE UNIT

Each teacher will need some criteria by which to judge whether or not her unit of work has been successfully developed. Detailed criteria are given in the Appendix for the evaluation of unit studies. The set given below is simple, and has been found useful to classroom teachers.

1. Is the problem one which will provide educational experiences valuable for the growth and development of children?
2. Is the problem suited to the abilities of the group?
3. Do the children understand what they are trying to do and are they really interested?
4. Does it involve life situations, particularly social ones? (These situations should include planning procedures, carrying them out, and evaluating results.)
5. Are the available materials suited to the needs of the group? Have materials from the children's own environment been used to the greatest advantage?
6. Are accurate and adequate references being used?
7. Are worth-while subject-matter learnings actually resulting from several different fields, particularly in reading, English, art, arithmetic, music, science, health and social science? Do the children see these learnings in their relationships?
8. Are desirable personality habits being developed?

9. Are there satisfactions resulting from real accomplishment?
10. Is provision made for the right kind and amount of repetition necessary for effective learning?
11. Are the activities sufficiently varied to take care of the needs, abilities, and interests of individual children?
12. Have the problems set up at the beginning been solved satisfactorily? Have later problems been solved satisfactorily?
13. Has this unit of work stimulated further study in related fields on the part of some groups and individuals?
14. Are the materials left in the classroom and office accurate records of what the class has accomplished? Are these materials properly displayed and later filed for reference by pupils and teachers?

SOME OUTCOMES TO BE EXPECTED

Perhaps the most important outcome of teaching through large units is that more children are happy in school. Their experiences are varied and based upon their interests and needs. Each child has freedom in choosing his work and carrying out his plans. Children with widely varying abilities derive satisfaction because success is possible at different levels in activity work. Early in life the children form the habit of getting joy out of work.

Information gained through unit work has meaning because it is seen in its relationships. The solution of problems necessitates the collection and examination of information and the making and executing of plans, in the process of which new meanings are gained and seen in their relationships.

Unit work provides experiences in art, music, and literature that result in deepened appreciation. These subjects are not set apart but function as a part of the activities.

Of importance in this connection is the appreciation children develop of æsthetic values in their own environment.

The freedom children have in unit work in many social situations provide a variety of opportunities for developing habits and attitudes other than those connected with subject-matter. Some of these are courtesy, coöperation, responsibility, resourcefulness, and persistence. The teacher feels a responsibility for the social as well as the mental and physical development of the children.

Unit teaching provides opportunities for personality growth in the teacher. As she works along with the children she gains new information and sees new relationships. She grows in the understanding of children as she sees them in varied situations. She develops flexibility as she adapts herself to unexpected situations. She develops new interest along with the children.

Another important outcome of teaching by large units is the accumulation of valuable materials as the permanent property of the school. This includes such things as descriptions of units, samples of various kinds, collections of specimens, models, art work, and booklets.

SUMMARY

This chapter has been devoted to a discussion of important problems involved in the development of the large unit in the classroom. An attempt has been made to answer the questions arising in the teacher's mind concerning the use of the large unit. Steps in initiating a unit have been taken up and detailed procedures have been given for carrying on the large unit and checking its results. To be effective, a large unit must meet definite standards; some suggested standards have been given. The outcomes that may be expected from the use of the large unit in the classroom have been given in detail.

CHAPTER IX

LARGE UNITS OF WORK FOR THE FIRST GRADE

A STUDY OF ANIMALS

INTEREST IN the study of animals was aroused when one of the children brought a pet rabbit to school. While the children played with the pet, fed it, and cared for it, they talked about the rabbit and other animals. Interest in animals increased, and as result a baby alligator and some white rats were brought to school. One child brought his collie dog, and the children were interested in watching him stand on his hind legs and beg for food. These experiences developed into a study of animals.

Many questions came up. Where do wild animals live? What do animals eat? How many animals do we know? How can we tell the different animals? Why do some animals have fur? Why do some animals have long hair? Why do certain animals have sharp claws? Why do certain animals have long horns? Which are the biggest animals? How do animals keep clean? Why do certain animals have hard feet? Why do some animals climb trees? Why can some animals run faster than others? What animals are best for pets? How do animals learn tricks? Why don't elephants live with us like horses?

There were a great many stories and poems about animals. Pupils looked through books, found pictures of animals and learned to read their names and some of the stories and poems about them. They read their original animal stories and poems. Three of these are given here:

The Baby Rats

We found eight baby rats with the mother rat.
They are pink and white.
We are making a new cage for them.

Our Pet Squirrels

Jack brought us two pet squirrels this morning.
They have long bushy tails.
We have been watching them eat nuts.

When talking about the animal they liked best one child gave the following story:

I like a horse.
I have a horse.
He is black with a white spot on his forehead.
I ride my horse almost every day after school.
I am going to ride him when I go home today.

The children often talked about animals while on the playground. One child was heard saying the following nonsense rhyme:

Cats and dogs, chickens and hens
Should all be kept in pens.

The children learned many animal poems, including "Furry Bear," by A. A. Milne, and "The Cow," by Robert Louis Stevenson. The readers and classroom library books provided a wealth of stories about animals. These were enjoyed by pupils both individually and in groups. It was fun for the children to learn to recognize and pronounce some of the difficult animal names, such as hippopotamus, giraffe, kangaroo, and zebra.

Situations arose that provided mathematical experiences.

The boys and girls talked about the sizes of animals and made many comparisons. They weighed their pet rabbit, measured it, and estimated the size of a house for it. A cage was made for the white rats. The children measured the materials to be used in building the house and the cage and kept a record of the cost of materials bought.

They also learned interesting historical and geographical facts about animals. They learned how men first tamed animals and trained them to work, and how these animals now help man. They learned that some animals live in hot places and some in cold places; that many live in forests; that some live in water and some on land; that all animals live where they can get the kind of food they need.

This unit provided opportunities for developing skill in practical and fine arts. In addition to the house for the rabbit and the cage for the white rats, they made an aquarium by using a glass jar and putting water, fish, and plants into it. The baby alligator was first put into a pail; later a child brought a wooden tub, which made a more suitable home for him. In connection with this work the pupils made oilcloth animals, their own costumes for a circus parade, and a scrapbook about animals. After the children had studied famous pictures of animals, they cut animals for a frieze and painted the background. They also modeled animals of clay and made some of wooden blocks. In making the blankets, the clown costumes, and other things for the circus parade, the children used bright colors. While doing this they learned the names of the colors.

The names of the animals were written under the pictures pasted in the animal scrapbook, and the children wrote invitations like this:

COME TO OUR ANIMAL SHOW.

FIRST GRADE.

Appropriate songs were learned, such as "Animal Crackers," "I Had a Little Doggy," "Squirrel Dear," "Playing Horse," "The Elephant," and "Bunny Rabbit." The favorites were "Mr. Rooster and Mrs. Hen," "The Chicken," and "Mr. Duck and Mr. Turkey." In their rhythms the children imitated animals by galloping and prancing like horses, and in the circus parade each child indicated by his manner of walking what animal he was impersonating. This was often accompanied by the noise peculiar to that animal, such as the bark of the dog.

The pupils learned that health habits are important for animals as well as for people, and that both animals and people must have water to drink and certain kinds of food in order to be healthy. The children fed their pets regularly and were careful to wash their hands after playing with the pets or caring for them. In building the rabbit house and the rat cage, the children took care to make them with movable floors so that they could be easily cleaned, and they took turns in cleaning them.

This unit furnished many experiences in science. The children learned to recognize many animals by sight and by means of pictures and stories, gained a great deal of information about them. For instance, they learned that bears sleep in winter; camels have padded feet which enable them to walk on sand; animals that have to walk on hard ground have hoofs and those that have to walk on soft ground have padded feet; the horns of deer and other animals are for protection; animals climb trees and do other things for protection; the elephant's trunk and the camel's hump are of use to these animals; the fish breathes with its gills; the tadpole loses its tail. They also learned that growing plants in the aquarium keep the water pure.

There were many situations favorable to the development of character. The children fed their rabbit, watered it, and

took it to the playground for exercise. They cared for the white rats and the baby alligator. When different pets were brought to school for a day, the pupils were kind to them. They developed group consciousness as they shared in the ownership and responsibility for their pets. In this way the children learned that most animals are friendly if one is kind to them. They also learned that many dangerous animals are not harmful unless they are disturbed. As a result of the study, many of the pupils became interested in the animals around their homes, helped to care for them, and reported a number of interesting things about them.

Other activities were suggested by the development of this unit. An animal program was given at the school assembly. It consisted of a circus ring, songs and rhythms about animals, and stories and poems. A report of this program was prepared by the teacher and pupils for the weekly paper and in printed form was read with interest by children and parents.

This study of animals may be evaluated in terms of desirable learnings, particularly in the fields of science and character development. Besides the scientific information learned, the children formed the habit of studying animals. A better understanding of the nature of animals removed fear and fostered a love for them and an appreciation of their value. The children developed attitudes of responsibility and kindness. A study of animals is particularly suitable for the first grade because at this age level children are keenly interested in live animals.

THE MID-MORNING LUNCH

Early in the year the teacher made arrangements for a mid-morning lunch. The children were delighted and wanted to have it every day. The teacher explained that the cups and other things had been borrowed for this special

occasion and asked the children if they thought it would be right to ask to borrow them every day. She told them she had bought the food for this lunch but could not afford to continue to buy it. They began to talk about how they could get the things they would need for a mid-morning lunch. No decision was reached that day.

Many questions concerning plans for mid-morning lunch were asked during the next two days. The teacher was interested and discussed the problems with the children but let them make their own plans, since she wanted them to feel responsible for the undertaking. During the discussions the following questions were asked: What shall we have for lunch? Shall we have lunch every day? What things do we need for serving lunch? Where shall we get these things? How many of them could we make? Where shall we keep our dishes? Who will wash the dishes?

The third morning, at the planning period which preceded the activity period, Wallace asked to make some dishes to be used for mid-morning lunch. As the things needed were named by the children, the teacher listed them on the board. The list included bowls for crackers, pitchers for water, and aprons for the waitresses.

After they began serving lunch, they found they needed other things, many of which could be made during the activity period. They made the following articles of clay: cracker bowls, pitchers for water or milk, flower vases and candle holders for the tables. Unbleached cloth was used for making serving aprons and caps. Flour bags, furnished by the children, were used to make the towels needed. A table for washing dishes was made and covered with oil-cloth. By putting shelves in a box, the boys constructed a cupboard for holding the dishes. The girls made a curtain to cover the front of the cupboard.

While doing this work, the children shared materials, and

each waited for his turn to use materials when there were not enough to go around. They often helped one another out of difficulties. In making aprons and towels, hems had to be taken out many times. This was irksome, but in most cases they stuck to the job until it was finished. If a piece of work was laid aside unfinished, a few suggestions from the teacher or from the group during discussion period were usually sufficient to cause the child to finish it. Some work was individual but a great deal of it was done by groups.

The pupils counted and measured while constructing the cupboard and table and thereby learned the use of the yardstick and the ruler. They used measurements in making towels, aprons, and caps, and they counted the number of crackers for each bowl. Each time lunch was served it was necessary to count the number of children and the number of visitors to be served. Some reasoning was necessary in determining the proper numbers, sizes, and proportions for serving.

Various questions came up after they began serving lunch. Some of them were as follows: Where shall our visitors sit? On which side do we serve milk? On which side do we serve the crackers? How shall we hold our glasses? What shall we talk about at the table? Shall we begin eating before all are served? Is it polite to reach in front of the other girls and boys for our food?

The children assumed the entire responsibility for arranging the tables and chairs, placing dishes and food on the tables, looking after the guests, serving the lunch, putting the room in order after the lunch, and washing the dishes and putting them away. Occasionally a pupil from another room or a grown person was a guest for lunch. One child would go to the visitor, ask him to sit at his table, and then

conduct him to his place. Two children, working together, served at each table.

Occasionally after they were through eating but still seated around the table, a few minutes were given to a discussion of table manners. Remarks such as the following were made: "I noticed something nice at our table. No one ate until all were served." "One boy at our table reached in front of another boy to get some crackers. What should he have done?" Occasionally some evidence was given that children were raising their standards of behavior at meal times. For example, one boy remarked to a visitor as they finished lunch, "When I get up from the table at home, I always stretch."

Songs were often sung while the children were still grouped around the lunch tables and sometimes selections were played on the phonograph. Rhythms usually followed the lunch period. This is a good time for rhythms because the noise made by dishwashing does not disturb the children participating in the rhythms.

Before lunch all the pupils went to the toilets, washed their hands, and went to the drinking fountains. While lunch was being prepared by a few, the others went out for exercise.

Reading announcements about lunch and stories about their work for the lunch were always interesting to the children. The pupils read the bulletin board each morning to find out who would serve the lunch and to read such special announcements as "We shall have two visitors for lunch today." After the work period, during which the pupils made necessary articles for lunch, they assembled in groups according to the centers in which they had been working. The members of each group decided on a story to be reported about the progress of their work and further plans, and selected the one to make the report. The child

selected then told the story of his group to the entire class. After the class had chosen the account which they would like to read from the blackboard, the teacher wrote it there, and it was read by the class. Later, it was printed and added to the activity chart. Some of the stories were written and placed in booklets for the reading tables. Pupils who had previously shown little interest in reading often became interested in reading their own stories. Oral English was spontaneous during the lunch period while pupils talked with each other and with visitors. As a part of the entertainment, stories were often told by the pupils just after they finished eating. Sometimes poems were recited in concert. "Animal Crackers" was a favorite poem for this period.

One day the children were told that it would soon be their time to give a program at the school assembly. They decided to do several of the things they had been doing in their room and display some of the articles they had made. The program was given without any of the drill and practice formerly required for such occasions. All pupils were seated in their classroom chairs on the stage. Many things which they had made were attractively arranged near by. As the pupil who had been selected to announce the numbers called the names, the pupil or group of pupils showed the articles which they had made, told what they were, and how they were to be used. The children displayed the following things: towels, aprons, cupboard with curtains, serving trays, a pitcher, bowls, a kitchen table, and a serving table. They also read from their activity chart the following story:

Our Serving Table

We finished making our serving table yesterday. I tacked the cover on it. Wallace and I put one coat of paint on it. It is ready to use now.

Songs and rhythms used in connection with the lunch period were included in the program.

The editors of the school paper asked the children for a story about their assembly program, and when the paper was published, they enjoyed reading their printed report of the program.

As the teacher worked with the pupils in beautifying the classroom and talked about suitable bowls and arrangements for flowers, they became more interested in making the tables attractive for the mid-morning lunch. Each classroom in the building had one good piece of pottery, and, by observing these, the children learned the value of pleasing lines and harmonious colors. When they made their own pottery, they tried various shapes and worked to secure good lines and smooth surfaces. Then they painted the pieces in sets for the different tables, being careful to use colors that would harmonize with the schoolroom furnishings. A set usually consisted of a pitcher, vase, cracker bowl, and two candle holders. Dishes and flowers were so arranged that the tables presented an attractive appearance. In selecting the vases for each table the children considered the color of flowers to be used on that table. They soon learned not to select pottery and flowers which were so tall that the view across the table would be obscured. They learned, too, that a few flowers in a vase are usually more attractive than many flowers, and that pleasing effects may be obtained with large masses of flowers in suitable bowls.

This unit of work was particularly valuable in raising the plane of pupil behavior in social situations. They learned some of the duties of the host and the hostess, the proper way to serve, how to eat and drink without making unnecessary noise, the proper kind of conversation to carry on while eating, and good table manners generally. They also learned to keep things clean and to replace broken articles.

They learned self-control in relation to the group. In addition to the social experiences obtained and the knowledge gained of food values, the food itself was important, particularly for those children who had early or insufficient breakfasts and for those who were undernourished.

BUILDING A HOUSE

The teacher visited another first-grade room, and on her return described to her pupils what she had seen. They were particularly interested in the house which the other pupils were building, and began drawing plans on paper and on the blackboard. Then they expressed a desire to build a house of their own. After much discussion they decided that it would be best to make it a large one so that they could get inside and play.

Some of the questions that arose were: What do we need for building our house? How large shall we make it? Where shall we put it? What shall we do first? How can we make the house stand up? How can we make windows? How many windows shall we have? How shall we make the door? How can we make the roof? What color shall we paint the house? Where shall we get the paint? What shall we put into our house?

At the planning period which preceded the work period the children talked about what they would do during the work period. At the conference period which followed, one member from each group gave a report on the work of his group. The children discussed these reports and the work which had been done. One report that was selected by the class was written on the blackboard by the teacher and then read by the class. Later, it was printed on a large piece of paper and became a part of the activity chart. Below are given examples of stories which were a part of this unit.

Our House

We made a house.
We painted the outside white.
We painted the roof and the window boxes green.
The girls have made curtains for the windows.
There are pretty flowers growing in the window boxes.

Pinkie's New Dress¹

Pinkie has a new dress.
Her new dress is pink.
She has bloomers to match her dress.
We finished them last week.
We made them by the pattern Miss Powell gave us.
We are working on her bonnet now.

Lottie Willis
Reva Pearl Rose

Stories composed by the pupils and written on the blackboard by the teacher were copied in booklets to be used on the reading table. The sign "Wet Paint," was made to use on articles as they were painted.

While caring for the house the children learned the importance of having fresh air, sunshine, and good ventilation and of keeping clean the house and furnishings which were constantly used.

The study offered opportunities for the development of social attitudes and appreciations. The teacher and the children talked about how people once lived in caves, huts, and log cabins, and they visited the wigwams which the second-grade children had made on the school grounds. They visited the teacherage and noted the attractive furnishings in the house. Later, they compared old and modern ways

¹ Pinkie was the doll the children kept in the house.

of living. Several discussions centered around the origin of the materials needed and how they were transported. The children displayed a great deal of interest in the large trucks which passed the school, and they made surmises concerning the probable destination and use of their contents.

This unit provided experiences in practical and fine arts and opportunities for creative development. The house was built with windows and a door, and window boxes were added. The furniture, which included a table, chairs large enough for use, a cabinet with shelves for dishes, and a doll bed, was constructed by the pupils. The girls took pleasure in making clothes for the doll that lived in the house. For the bed they made a mattress, pillows, sheets, a quilt, and a bedspread. Curtains were made for the windows and a scarf for the table. Clay was used to make a vase for the table and dishes for the cabinet. A rug was woven for the floor. After a discussion concerning desirable colors, the house was painted white and trimmed with green. Wax crayolas were used in making designs for the curtains. The children were encouraged to use artistic lines in constructing wooden articles and in clay modeling. Postcards and magazine pictures of good houses were collected, and special interest was shown in old houses like Mount Vernon.

The study provided some experiences in arithmetic. The children measured to determine how large the house should be and the sizes of boards, windows, door, furniture, rugs, curtains, and scarfs. They calculated the amount of wall paper needed and counted the cost of the things they had to buy, such as nails and paint. In order to determine the proper sizes and proportions, both counting and reasoning were necessary.

While building the house, pupils found coöperation and persistence necessary in carrying out their plans. All pupils worked on the house and its furnishings, sometimes alone

but usually in groups. The boys helped one another measure boards, some holding the boards while others sawed and nailed. Frequently, one girl was seen to thread a needle for another. Three girls usually worked together on a rug, one cutting the strips, another sewing them together, and the other weaving. The children cheerfully shared tools and materials. The boys often carried the water for the girls to use in washing the doll's clothes. The members of each group decided what the report of the work done by their group should be and who should make it. When the report was made the entire class discussed ways of improving the work and the reports, and called attention to especially good points. Criticisms were accepted cheerfully. Persistence was especially noted when the children were putting rafters on the house and weaving the large rug.

Several other activities grew out of this unit of work. The children planted shade trees on the school ground and some of them planted shade trees at home. Many of them made window boxes for the home similar to those made at school. Two of the little girls sewed so well that they decided to make dresses for themselves. Furniture and other things were cleaned and repaired as needed. More interest was taken in making the classroom an attractive and healthful place in which to live.

This unit of work provided a variety of experiences through which the children developed physically, mentally, and socially. Pupils lived through many happy experiences in building and equipping the house, and a spirit of coöperation was developed. Some children who had previously shown little interest in school worked on the house and seemed happy because they had something which they could do well and which they enjoyed doing. Interest was stimulated in reading, art, arithmetic, and health. Through the building activities and through the manipulation of mate-

rials there were opportunities to develop muscular coördination. Duties varied from day to day. The keeping of the completed house was an enjoyable activity during the remainder of the school year.

BIBLIOGRAPHY

A STUDY OF ANIMALS

- Aldredge, Edna M., and McKee, Jessie Fulton. *Wags and Woofe*. Boston, Ginn and Company, 1928.
- Blaisdell, Mary F. *Polly and Dolly*. Boston, Little, Brown and Company, 1928.
- Dall, Anna Roosevelt. *Scamper*. New York, The Macmillan Company, 1934.
- Dearborn, Blanche J. *Country Days*. New York, The Macmillan Company, 1931.
- *Kitten-Kat*. New York, The Macmillan Company, 1930.
- Elson, William H., Runkel, Lura E., and Gray, William S. *Elson Basic Readers, Primer*. Chicago, Scott, Foresman and Company, 1930.
- Flack, Marjorie. *Angus and the Ducks*. Garden City, N. Y., Doubleday, Doran and Company, 1931.
- Gage, Lucy. *Out and Playing*. Chicago, Mentzer, Bush and Company, 1927.
- Gecks, Mathilde C., Skinner, Charles E., and Withers, John W. *Friends to Make*. Richmond, Va., Johnson Publishing Company, 1928.
- Hardy, Marjorie. *Wag and Puff*. Chicago, Wheeler Publishing Company, 1929.
- Huber, Miriam B. *Cinder, the Cat*. New York, American Book Company, 1931.
- LaRue, Mabel Guinnip. *In Animal Land*. New York, The Macmillan Company, 1927.
- *The F-U-N Book*. New York, The Macmillan Company, 1927.
- *Under the Story Tree*. New York, The Macmillan Company, 1924.

- Martin, Cora M., and Hill, Patty Smith. *At the Farm*. New York, Charles Scribner's Sons, 1930.
- Morrow, Elizabeth, and D'Harnoncourt, Rene (music by Eberhard d'Harnoncourt). *Beast, Bird and Fish*. New York, Alfred A. Knopf, 1933.
- Morse, George F. *The Life of Baby Animals*. Chicago, Thomas S. Rockwell Company, 1930.
- *Wild Animals of America*. Chicago, Thomas S. Rockwell Company, 1931.
- Pennell, Mary E. *Old Friends and New*. Boston, Ginn and Company, 1932.
- Read, Helen S. *Grandfather's Farm*. New York, Charles Scribner's Sons, 1928.
- Serl and Evans. *Work-a-Day Doings*. Boston, Silver, Burdett and Company, 1914.
- Srager, Matilda, and Rabenort, William. *Rainbow Readers, Primer*. Evanston, Ill., Row, Peterson and Company, 1931.
- Stafford, Cora Elder, and Rucker, Pearl. *My Brownie Art Book*. New York, Laidlaw Brothers, 1930.
- Tucker, Louise E. (ed.). *Poems for Children, Books I and II*. Syracuse, N. Y., Iroquois Publishing Company, 1929.
- Tuttle, Florence Piper. *Our Book World—Playing Days, A Primer*. New York, Longmans, Green and Company, 1931.
- Wright, Isa L. *Having Fun*. New York, Houghton Mifflin Company, 1929.

A STUDY OF HOMES

- Dobbs, Ella V. *Our Playhouse*. Chicago, Rand, McNally and Company, 1924.
- Elson, William H., and Gray, William S. *Elson Basic Readers, Book One*. Chicago, Scott, Foresman and Company, 1930.
- Gage, Lucy. *Up and Doing*. Mentzer, Bush and Company, 1927.
- Martin, Cora M., and Hill, Patty Smith. *At Home*. New York, Charles Scribner's Sons, 1930.
- Tuttle, Florence Piper. *Poetry Patch House*, "The Poetry Readers." Brattleboro, Vt., Stephen Daye Press, 1933.

CHAPTER X

LARGE UNITS OF WORK FOR THE SECOND GRADE

GROWING FLOWERS

ONE MORNING after the pupils had arranged the fresh flowers they had brought for their room, several expressed the desire to have flowers in the room every day. One child thought they could use paper flowers but they agreed that paper flowers are not so pretty as real ones. Another child suggested they buy flowers, but the class decided they could not do this because they did not have the money. When someone suggested that they grow flowers, all agreed that this might be done. To grow flowers for the classroom then became an important problem.

Some questions that arose were: What flowers shall we grow? Could we have flowers in bloom all winter? Shall we have flowers that do not bloom? How many flowers shall we have? How shall we grow them? Where shall we keep them? What kind of soil shall we use? Shall we have window boxes? Where shall we get our plants and seeds? How may we save our flowers? A lady wants us to keep her large fern during the winter; shall we do this?

The children told stories about flowers. Some of these were learned from parents and friends; others were found in books and magazines. One reader gave directions for planting a bulb in water and the children planted a bulb according to these directions. Original stories and poems about flowers were put on charts and read by the class. The children found poems about flowers, such as, "The

Flowers," by Robert Louis Stevenson, and "Harebells" and "The Sprinkler," by Dorothy Aldis, and read these during the pleasure reading hour. They made original riddles about flowers, which they enjoyed asking each other. Some of the words the children learned to recognize and spell were: bloom, bowl, bulb, dirt, flower, grow, pebbles, plant, pretty, sand, soil, water.

The pupils kept a record of the money that was spent for seeds, lumber, and other necessary material. In their record book they wrote the following dates: when the flowers were planted, when they bloomed, and when they stopped blooming. They often measured the plants with a ruler and recorded the height and the date. The ground for the flower garden and the distances for spacing the flowers in the garden were carefully measured. The lumber needed for a flower box and stand was estimated and then measured.

The children learned that plants have been taken from one section of the country and transplanted in another. One child stated that relatives from a distance who visited his home took plants back with them. Another child gave an interesting account of shrubs which a sea captain ancestor had brought from foreign countries and planted in their garden. They learned that some plants grow where it is cold and that others will not grow in cold places, because different plants often require different climates. They made a study of wild flowers and listed on a chart the name of each of their specimens and where it was found.

This unit provided experiences in both practical and fine arts. Some white narcissus bulbs were bought and planted in a bowl. Three quart-cans were painted green to harmonize with the color scheme in the science center. After flowers were planted in them, they were placed in the windows and added to the attractiveness of the room. Flower pots, wall vases, and other vases were modeled of clay and

painted. The children made one book which contained colored pictures of flowers properly labeled, and another with their drawings and pressed flowers which had been brought to the classroom during the year. A flower garden was planted on the school grounds after the children had appointed a committee who talked over their plans with the principal and promised him that they would keep the garden in good condition. They loosened the soil, fertilized it, planted flowers, cultivated them, and built a low rustic fence of pine branches around the garden. A flower box and a stand for it were made by the pupils, and rich soil was secured to put in the box. Some of the plants were donated by the parents. Vines were planted around the sides of the garden, and plants that bloom often were put in the center.

Good pictures of flowers were collected and studied. The pupils painted pictures of flowers and made borders, using flowers for designs. A bright-colored frieze of various kinds of wild flowers was painted. The children became interested in the flower patterns in girls' dresses and began to notice that flower designs were used in textiles, wall papers, and many other things.

Some of their songs about flowers were: "The Flower," "Blossom Time," "Springtime Is Here," "The Daisies," "Hey! Little Buttercup," "Early Flowers," "The Jasmine Flower," "The Poppy," "Little Gypsy Dandelion," and "A Flower Song." "The Flowers and the Wind" was a game that the children played.

While talking about the number and kinds of plants to keep in the classroom and the places to put them, the children learned that it would not be best to have too many or to have them in large, heavy containers. They did not put many plants in the windows because these would keep out some of the light and air. For lack of space, they decided not to accept the large fern which had been offered. The

pupils used only two window boxes and one flower stand, which was light enough to be easily moved to make room for rhythms and other activities. In the afternoon and during the activity periods the children spent some of their time in caring for the flowers in their room and in working on the flower garden. They shared their flowers with others and were careful to include the people who had given them plants early in the year. When they gathered wild flowers they tried not to destroy the plants and did not gather more than they planned to use. They kept their painted cans, flower pots, vases, and other containers on plates or other holders so that the water would not mar the school furniture.

The children learned to recognize many kinds of flowers, especially those growing wild in their community. They learned how to prepare the soil for flowers; that flowers may be produced from seeds, plants, bulbs, and from pieces of plants cut off and kept in water or soil; that sunlight, water, and the right kind of soil make flowers grow better; and that the flowers in their garden grew better when the weeds were pulled up and the soil was loosened. They gave an assembly program about flowers, in which they included songs, poems, and games, and demonstrated how to arrange flowers attractively in a vase. One of their friezes and several of their flower pictures made a background for their program. Many of the pupils made flower gardens at their homes, and others helped in their mothers' flower gardens. In the spring the grade gave a flower show and invited their parents, friends, and the children from the first grade. A trip to a gladiola farm increased their interest in flowers, and they learned that some people make their living by raising flowers.

During this study the children gained scientific information about flowers and learned to appreciate them more. They enjoyed working with flowers and having them in the

room and had many experiences in making desirable arrangements of them. They became interested in wild flowers and learned to take care of them and appreciate them in their natural surroundings. This new interest which the children developed was a living, growing thing, extending throughout the year.

A STORE

The pupils read about a store made by children and decided they would like to have one. The teacher took the class to a store and they observed what was in it and what the storekeeper did. After the visit they made a list of the articles they would need. They decided that they would build a store that was large enough to stand in and sell things and that it should have a money drawer.

The children asked: How large shall we make our store? How many shelves do we need? How shall we make the shelves? What shall we sell? Where shall we get things to sell? Can we keep fruit in our store? How can we make a money drawer? What kind of money shall we use? Shall we sell tablets and pencils?

Pupils found stories about stores in readers and library books. Reports in story form were given about things made for the store during the activity period. These were written on the blackboard by the teacher and read by the pupils. They were then copied by the children and made into booklets for the reading table. The printed names of the articles kept in the store, with their prices, were soon recognized by the children. The composing and writing of sale announcements gave additional experiences in reading and English. They wrote announcements about their sales and sent them to other classrooms; for example, "Big red apples on sale today at 3 cents apiece." Each day the pupils wrote an

order for the fruit they would need in the store the next day.

"The Toy Man" and "Gypsy Peddler" were learned and sung by the group.

Advertisements of sales printed in the daily papers were clipped and brought to school for the bulletin board. Waiting on customers gave opportunities for conversational experiences. The children learned to recognize, spell, and write such words as these: buy, cent, cost, counter, dime, drawer, money, paid, pay, penny, sell, shelf.

Measuring and mathematical reasoning were used to determine the size of the store and the equipment. Knowledge of addition and subtraction was essential for the child who was clerk in the store as well as for the children who bought articles. Much opportunity was given for practice in using such terms as cent, nickel, dime, quarter, half-dollar, and dollar. Figures and money signs on the price tags for articles in the store were made by the children.

The pupils were interested in finding out where various articles in the store came from, and this gave them an opportunity to learn something about goods raised or manufactured in other countries, and how they were brought to this country. Stories were read about how the Indians traded and what they used for money. Sometimes a boy would play that he was a peddler, put his wares in a bag on his back, and go about the playground selling things. While the children were working on the bus and airplane which they made to sell in the store, they compared modern means of transportation with those that were used when their grandparents were boys and girls.

There were opportunities for experiences in both fine and industrial arts. In the store there were windows, a door on hinges, shelves for the articles to be sold, and a money drawer. Many toy articles were constructed, including a

bus, a wagon, airplanes, kites, windmills, a swing, a doll cradle, and a pushcart. The swing, wagon, and pushcart were large enough for the children to use. The girls made a quilt, a rag doll, doll dresses, paper money, sale signs, dishes of clay, and bags to be used in the store. Pictures of things to be sold in the store were painted, and attractive booklets were made and put on sale. Articles placed in the store had to meet certain standards of excellence, especially those of usefulness and beauty.

During many trials and delays, the workers showed a great deal of persistence. When two boys were ready to put windows in the bus, twice a board split. This did not dishearten the boys; they kept on until they succeeded. The group working on the wagon had a great deal of difficulty in putting the body together, and it took them several weeks to get the wheels for it. When the wheels were procured they were put on at least four times before they would turn. Finally, the boys got the wheels fastened securely and started to put on the tongue. Here they were again delayed because a hinge to fasten it could not be found immediately. Finally one of the boys brought a hinge that was the right size, but it came off several times. At last the wagon was completed and it was strong enough for the children to ride in it. Each child kept account of the materials he used, put them away carefully, and cleaned up after the work period.

Fruit was sold in the store and this helped the children to acquire the habit of eating more fruit and less candy. They learned that fresh fruits and vegetables could not usually be kept long in the store. The group decided to buy fruit in small quantities in order that it might be sold in good condition. After selling fruit the children became interested in learning all they could about foods. The importance of having fresh vegetables was brought out, and the children planted some in their home gardens.

This unit provided experiences in arithmetic, English, industrial arts and character development. Arithmetic experiences were especially varied. Opportunities were provided for practice in persistence under difficulties, in courtesy, in honesty in handling money and materials, and in working together.

A SCIENCE COLLECTION

The teacher took some shells, leaves, pine burrs, a hornet's nest, and some tadpoles to the classroom and placed them on her desk. Before school opened the children gathered around the desk and began to ask questions about the specimens. After they had talked about them the teacher suggested that they might have some interesting things they would like to bring to school to share with others and that these could be put together to form a science center. She told the pupils that interesting science materials are often kept in large museums. The children expressed a desire to have a good science collection in their schoolroom.

Members of the group began to ask questions. What shall we have in our collection? Where shall we get our specimens? How shall we find out what to call some of them? Shall we have live animals? How can we keep them alive? Where shall we keep our specimens? How can we arrange them attractively? Shall we have animals that live in water? How many specimens of one kind shall we keep? How shall we keep leaves and flowers? How do hornets make nests? Is it real paper? What is it made of? Will these tadpoles turn to frogs? What do they eat? How does water weed look? What makes a crayfish shed its shell? What are those little black things under the crayfish? When are we going to put our fish in the pool? What is under that shell that will not sink? Can a turtle swim? What can we give the turtle to eat?

In science readers and in other books they found many stories about their specimens. These were listed for reference. Stories and poems about insects and animals were brought from the library by the pupils. During class conversation they told how and where they got specimens and made plans for arranging them. In this way experiences in oral English occurred in a natural way. Some of their stories and poems are given here.

"George, Jr., brought us a hornet's nest.
It was built on a limb in a high tree.
It is an old nest.
The hornets have left it.
The nest is made of wood and bark.
They got a juice from their mouths to stick it
together, and it looks like paper.
It is shaped like an egg."

"Ormsby brought us a crayfish this morning.
It has just shed its shell.
It is reddish brown with white spots on its
tail and claws.
The claws are big and bright.
It was mud color before it shed its shell, be-
cause it lived in the mud."

"Roscoe, Clarence and I worked on the science
table this morning.
We measured the boards and marked the
places for the shelves.
We want to finish it tomorrow and paint it
Thursday."

"Gordon brought a turtle this morning.
He found him in the ditch.

We put him in a box and he crawled out.
We like to see him crawl out."

"We have a little turtle.
He swims in our pool.
He climbs upon the rocks,
And jumps into the water to cool."

The children learned to spell the following words because they needed them in writing their stories and records: animal, aquarium, bark, beak, bird, body, butterfly, cactus, cement, crayfish, flowers, guide, habits, hide, hornet, Japanese garden, moss, mounted, mouth, museum, nest, odor, paste, pool, quill, sea, shell, skin, snake, spread, stuffed, swim, tadpole, tail, tanned, terrapin, turtle, wasp, wings.

The children kept a record of the cost of materials bought for the museum. They estimated the sizes of containers needed and made measurements for plaques and other things used for mounting specimens. They measured boards to make the science cabinet: two ends forty inches long, three shelves thirty-six inches long, shelves fourteen inches apart. They measured the water used in the aquarium, thus becoming familiar with the half-pint, pint, quart, and gallon. They made problems about the water in the aquarium; for example, we have seven quarts of water in our aquarium; how many pints do we have in it?

The children learned how the Indians used shells as a substitute for money and how the early settlers used these as cups. They learned how the skins of fur-bearing animals are bought and shipped, made into clothing and other articles, and then sent to many places. They also learned that certain animals and insects thrive best in some climates and cannot live in other climates and that some fish and birds migrate.

They learned, too, how skins are treated and made into clothing. Some rabbit skins were tanned and brought to school stretched on boards. Others were tanned, stuffed, and mounted on small branches of trees. One child brought a deerskin which his father had tanned, and placed it near the science center to be used as a rug. Insects were mounted on pins in cigar boxes which were covered with glass lids. Glass jars were used for aquariums in which frogs' eggs, fish, snails, and water plants were kept. They made a science table and a cabinet for specimens, an aquarium for fish and plants, and a box for the turtle. They studied changes from raw materials to the finished product of the hornet's nest and observed stages in the development of the crayfish and the frog.

Colored pictures of animals and insects were collected by the children. They painted pictures of a butterfly on a cabbage leaf and a bee getting honey from a flower. They studied the coloring of insects, birds, and other animals. Bright-colored butterflies mounted on cotton and framed attractively made an interesting picture for the science center. A cover was designed for the science collection record book.

During their study the children learned what foods are necessary for certain animals. They learned some ways to get rid of mosquitoes and flies. The frequent field trips to get specimens provided outdoor exercise.

They learned about musical sounds made by animals. They found that bees, flies, and mosquitoes make humming noises when flying and that the grasshopper, the katydid, the cricket, and the harvest fly are insects that by certain movements make definite noises. Grasshoppers' wing-covers are their fiddles and their hind legs are their bows. These insects play simple tunes by drawing their bows across their fiddles. The katydids raise both wing-covers

above the back and rub them together to produce their shrill chirrup. The pupils enjoyed singing songs about insects and animals. Some of the most popular were "To a Grasshopper," "The Shell," "Mother Ant," "Captain Ant," "A Frog Went A-Courting," "The Spider and the Fly," "To a Honey Bee," "The Butterfly," and "The Silk Worm."

The common names of many insects and animals were learned. Some facts were especially interesting to the children. When an insect grows, it bursts its skin down the back and then sheds it; that is why so many different kinds of insect skins are found during the summer. Most insects shed their skins four or five times, and their wings appear after the last shedding. Some insects are useful to man because they carry pollen from one plant to another. Insects often have special tasks to perform; for instance, one bumblebee acts as sentry when the nights are dark and the other bumblebees are sleeping. The honeybee was voted one of the most useful insects and the mosquito and the fly two of the most harmful. The turtle, the oyster, and many sea animals have hard shells for their protection. In taking care of their aquarium the children learned that the water in which animals live must contain plant life.

Experience taught the children that bees do not usually sting unless they are annoyed. They also learned that in order to observe the habits of insects and animals they must be quiet and not do anything to disturb them; this caution was especially needed when the class took field trips. Their study showed them that most birds are useful and should be protected. Live animals in the aquarium were cared for by the children. They invited children in different grades, their parents, and friends to visit their collection and often shared materials with others who were interested.

Other activities were connected with the development of the unit. The pupils became interested in how animals pro-

tect themselves and how they care for their young. At the end of the year the teacher asked what should be done with the specimens collected, and it was decided that the best ones should be given to the school museum, in order that the whole school might use and enjoy them. The pupils approved this plan because they had enjoyed making the collection, and they felt that the girls and boys in that room next year might like to make their own collection. Many of the children became interested in a study of particular animals and began to make individual collections.

The most important learnings in this unit were in natural science. The pupils learned to recognize numerous forms of animal and plant life and acquired a knowledge of some simple facts about them. The teacher was careful not to go into scientific details beyond the capacity of the children. Many good specimens were given to the school museum. When these children left the second grade they carried with them an interest in science which should continue to grow, not only while they are in school but in adult life.

BIBLIOGRAPHY

GROWING FLOWERS

- Beauchamp, Wilbur L., Crampton, Gertrude, and Gray, William S. *Science Stories, Book I*. Chicago, Scott, Foresman and Company, 1933.
- Craig, Gerald S., and Baldwin, Sarah E. *Pathways in Science—Book I, We Look About Us; Book II, Out-of-Doors*. Boston, Ginn and Company, 1932.
- Persing, Ellis C., and Peeples, Elizabeth K. *Elementary Science by Grades, Book III*. New York, D. Appleton-Century Company, 1928.
- Stafford, Cora Elder, and Rucker, Pearl. *My Rainbow Art Book*. New York, Laidlaw Brothers, 1930.

- Tucker, Louise E. (ed.). *Poems for Children*, Books I and II. Syracuse, N. Y., Iroquois Publishing Company, 1929.
- Tuttle, Florence Piper. *Real and Make-Believe, A Second Reader*. New York, Longmans, Green and Company, 1931.

A STORE

- Gage, Lucy. *Up and Doing; Out and Playing*. Mentzer, Bush and Company, 1927.
- Miller, Jane. *Jimmy, the Groceryman*. Boston, Houghton Mifflin Company, 1934.
- Read, Helen S. *Mr. Brown's Grocery Store*. New York, Charles Scribner's Sons, 1929.
- Smith-Luse-Morss. *Walks and Talks in Numberland*. Boston, Ginn and Company, 1929.

A SCIENCE COLLECTION

- Beauchamp, Wilbur L., Crampton, Gertrude, and Gray, William S. *Science Stories, Book I*. Chicago, Scott, Foresman and Company, 1933.
- Brown, Ethel C. *The Green Gate to the Sea*. New York, Silver, Burdett and Company, 1924.
- Craig, Gerald S., and Baldwin, Sarah E. *Pathways in Science—Book I, We Look About Us; Book II, Out-of-Doors*. Boston, Ginn and Company, 1932.
- Elson, William H., and Gray, William S. *Elson Basic Readers, Book Two*. Chicago, Scott, Foresman and Company, 1931.
- McElroy, Margaret J., and Younge, Jessica. *Toby Chipmunk*. New York, American Book Company, 1931.
- Patch, Edith M., and Howe, Harrison E. *Nature and Science Readers—Book I, Hunting*. New York, The Macmillan Company, 1933.
- Troxell, Eleanor, and Dunn, Fannie Wyche. *Baby Animals*. Evanston, Ill., Row, Peterson and Company, 1928.

CHAPTER XI

LARGE UNITS OF WORK FOR THE THIRD GRADE

INDIAN LIFE

THE STORY which one child had asked to read to the group was about Indians. Before the story was read the teacher placed pictures of Indians and of Indian life on the bulletin board. The children were interested in the pictures and the story and asked many questions about them. They began drawing pictures of Indians and Indian life and trying to find out how they lived. Some of the questions asked were: Who are the Indians? Where did they come from? What do Indians look like? Where do Indians live now? What do they wear? What do they eat? How do they live? How did they live when white men first came to this country? Did they live in houses like ours? Did they have furniture? How did they get things to eat? How did they cook? Did they go to school? How did the Indians travel? What made the white people afraid of them? How did the Indians make bowls? How did they weave? Did they believe in God?

The pupils read poems and stories about Indians in their readers and library books. They also were interested in bringing various stories and poems from books and magazines in their homes. Each child was eager to tell the class when he found a new Indian story. Each day at the close of the activity period the children made reports about the things they had been making for their Indian village. Usually one or two of these reports were written on the board by the teacher and read by the class. These stories

were copied by the children and made into booklets for the reading table.

Some of the words the pupils needed to learn to spell while studying about Indians were: arrow, bead, bow, bowl, canoe, chief, clay, deer, fish, hunt, Indian, paint, papoose, pipe, rug, skin, squaw, tribe, wampum, wigwam.

Each pupil kept a list of words used in the study of Indians, and all the children wrote original Indian stories. The grade as a whole wrote an invitation to the second grade to attend their Indian party.

Many of the activities gave opportunities for arithmetic experiences. The children estimated the sizes of wigwams and other things they planned to make and then measured to determine the exact size and proportions. They kept a record of the price paid for each thing that was bought. They used the terms dollars, half-dollars, quarters, dimes, cents, yards, feet, and inches. Measuring was used in determining the length of bows and arrows and the distances they would shoot. Contests were held to determine which could shoot an arrow the greatest distance, and subtraction was used to find out how much farther one could shoot than another. The making of Indian costumes required estimating and measuring.

The children learned about the tools of the Indians, their means of procuring food and clothing, and their methods of keeping a record of time on a time stick and of family records on totem poles. They constructed an Indian village of wigwams in the school yard. The pupils learned why Indians usually lived near the water and why they liked the forest, how they lived together in tribes under the leadership of a chief, and that their homes were wigwams, hogans, and cliffs. Some children went into the forests and tried marking trails as the Indians had done. Indian modes of travel were compared with those of today.

They made moccasins of rabbit skins dried on a frame; wigwams of poles and burlap bags; Indian suits and dresses of burlap bags trimmed with red cambric; head bands of red cloth and feathers; a papoose of burlap, unbleached cloth, cotton and paint; and a time stick and a totem pole of lumber. Notches were cut on the time stick to indicate periods of time. A tomahawk and spear were carved from wood and stone. A simple loom was made and rugs were woven. The boys made an Indian plow and a miniature canoe and paddles. Clay was used for a peace pipe, bowls, and beads. Shells, clay, and wild berries served as ornaments. Bowls and other things were made by the Indian coil method and some unsuccessful attempts were made to fire them in an outdoor kiln. Baskets were woven of pine straw and rugs from cloth strips. Gourds were decorated and used as musical instruments. The Indian method of curing skins was used with some success.

One interesting activity was the cooking and serving of an Indian meal. The children pounded corn into meal with flat rocks, made corn bread, cooked it and potatoes out of doors near their wigwams, and ate in Indian fashion.

The children had opportunities to study the Indians' love of color and variety in design. They sketched and painted at the easel and produced pictures of Indian homes, of forests, and of hunting and fishing scenes, which sometimes took the form of friezes. The pupils made Indian designs and decorated their wigwams with them. These activities gave opportunities for the use of creative art in the expression of the children's ideas about Indian life, and led them to good appreciation of color, line, and rhythm in Indian designs.

Gourds were used to beat time for marching and dancing. The children learned to sing "Indian Lullaby," "Papoose," "Indian Echo Song," and "Wah-Wah-tay-see," to do the

Indian war dance, and to give Indian calls. They liked the following poems about Indians: "The Little Indian," "By the Shores of Minnetonka," "Ewa-Yeal" and "Three Sioux Scouts."

The pupils noted that the Indians led out-of-door lives, ate simple food, and were usually strong and healthy. They tried to hold their bodies erect as the Indians did and learned some Indian dances.

The children decided to select a member from their group to act as chief each day, and this was done for several weeks. The chief was expected to be so fair and just that all would be willing to follow him. The same standards were set for his followers. This activity stimulated justice and loyalty on the playground. The outstanding leaders were often those children who had not previously been interested in school work.

A point emphasized was that the Indian had to be thoroughly acquainted with things around him and understand their uses. In order to live it was necessary for him to know nature thoroughly and be acquainted with the many processes necessary in procuring food and clothing. He needed to know how to preserve meat and fish, how to use fish for fertilizer, and numerous other things.

This study of Indian life gave the children many historical facts concerning early Indian life, and they had many experiences which helped them to understand some of its fundamental processes. They gained a better understanding of Indian life as compared with modern life and an appreciation of Indian art, especially as it is shown in weaving and pottery.

LIFE IN HOLLAND

In the readers several stories about the Dutch people were interesting to the children. One of these was "The Leak in

the Dike." The teacher had a number of pictures of Holland scenes and the pupils brought others. When one of the children brought a pair of wooden shoes to school, the class became interested and asked many questions about Dutch children. They wanted to learn about the life and customs of the people of Holland. They asked: What do Dutch people wear? Do all Dutch people wear wooden shoes? Do they wear wooden shoes all the time? Why do they wear wooden shoes? Do the girls and boys go to school? Do Dutch people make "Dutch Cleanser"? What is the main occupation of the Dutch fathers? Why are so many tulips raised in Holland? What are dikes? Why are there so many canals? What are windmills for? How do Dutch houses look? Are Dutch roads like ours? What do the Dutch children do for a good time?

More stories and poems about Dutch life were found in their readers and library books. The children made stories and poems which they told or read. Stories were illustrated with Dutch pictures cut from magazines or with pictures made by the children, which sometimes were made into posters suitable for the bulletin board. Some of these are given here.

Dutch Shoes

Here I am in America sitting in front of a class so that the little children can see me. I never dreamed that I would ever come to America and the man that made me never dreamed it either. I should like to go back to Holland again.

Games and Sports of Holland

There are many canals in Holland. In winter the canals freeze over. Dutch children skate on the ice. They play tag and many other games.

Some of the words the children needed in their written work are given here: apron, canal, carts, cattle, cheese, country, dike, Dutch, flood, Holland, market, milk cans, skate, stork, tulips, vegetable, windmill, wooden shoes.

Measuring was necessary to find the dimensions of paper houses and windmills used in the Dutch village, and problems were made about the cost of materials used. The buying and selling of milk, butter, cheese, vegetables, and bulbs made other problems. One child brought a label from a Dutch cheese to school, and the prices of American and Dutch cheese were compared.

The children learned about Henry Hudson's coming to this country in the *Half Moon* and about the early Dutch settlement in New York. In this connection they collected pictures of historical Dutch costumes and Dutch life. Holland was located on the map, and the route sailed by Henry Hudson when he came to New Amsterdam was traced. The pupils noted the size of Holland in comparison with their own state. They learned that Holland is called the Netherlands, which means "low lands" and they also learned how dikes protect these low lands from the sea. They found that the principal occupations were dairying, fishing, and raising vegetables and flowers. These were described and illustrated in a booklet about the occupation of the Dutch people. They were surprised to learn that Dutch people today dress much as we do.

They made a wall hanging, on cloth, showing Dutch scenes. Paper houses, windmills, paper dolls, carts, boats, etc., were made for the Dutch village. The children made many attempts to make wooden shoes but met with little success. They improvised historical Dutch costumes for themselves. They made a moving picture and showed a reel of the story, "The Leak in the Dike." They also made cheese, butter, bread, Dutch tiles, and bowls for tulips.

Flying kites became a hobby and several pretty ones were made. Clay book-ends with a tulip design were made and the same design was used on curtains for a cabinet. The pupils learned to appreciate several pictures of scenes in Holland and of Dutch life. Favorites were "A Bit of Old Holland" and "The Flower Girl of Holland." The film slide of "Johanna, the Little Dutch Girl" stimulated the pupils to make drawings of Dutch life.

"In Wooden Shoes" and "The Windmill" were learned and sung. Dutch dances and the "Wooden Shoe Drill" were learned and later given at an assembly program.

As the study progressed the pupils wrote stories and poems about Holland and made a list of books that contain stories, poems, games, pictures, and other items about that country. For the moving picture reel the children wrote short explanatory sentences to place below each picture. In addition, letters were written to the parents asking them to visit the school assembly and enjoy the program about life in Holland.

In the life of the Dutch people there were several desirable features noted by the children. Among these were habits of cleanliness, the abundant use of milk and vegetables, and outdoor sports, such as skating, boating, and flying kites.

This large unit of work gave the children a better understanding of the lives of the Dutch. They learned to think of them as people like ourselves instead of queer folk who dress in funny costumes. They also learned the location of Holland, the principal occupations of the people, and much of interest about their mode of living.

BIRDS

Among the new books for the library there were two about birds. The paper covers on these were very interest-

ing. As usual, the covers for new books were posted on the bulletin board by the classroom librarian.

The materials on the bulletin board aroused a discussion about birds. Some things the children wanted to know were: What kinds of birds are there around here? How can we learn to know the name of each? How can we find out more about our wild birds? How do birds make their nests? How can we learn to recognize the nests of the different birds? How can we learn the kind of egg each bird lays? Of what use are birds? Which birds stay here all winter? Which birds leave? Why do they leave? Where do they go? Which birds come back first? Which is the largest bird in the world? Which is the smallest bird in the world? How can we get more bird pictures? How can we make a bird bath? How many bird pictures, poems, and stories can we find?

The children found many bird poems and stories in their textbooks, library books, and magazines. Stories were read about the use of carrier pigeons during the World War. The children composed stories, riddles, and poems about birds. Some of these were written on the blackboard or printed on cardboard; others were copied and made into booklets. The pupils often gave these stories, poems, and riddles orally. Oral reports of nature-study walks were also made.

Two of the children's stories are given here.

The Penguin

The penguin has a white breast and a black back and tail. He weighs about thirty or forty pounds. He has a very long bill.

He lives in very cold countries, in the Antarctic regions.

He eats fish and shrimp.

He makes his nest in ice and snow. Around the nest the father puts pebbles to keep the water out. The mother takes a turn sitting on the two eggs and the father takes a turn.

Leslie

The Humming Bird

The humming bird is the smallest bird in the world. It is a green bird with a ruby throat.

It lives in the garden among the flowers. It eats honey from them.

The nest is very small, just about the size of a thimble. They are very hard to find.

Thelma

Some of the words needed in their written work were: birds, branch, feathers, fly, hatching, humming, mate, migrate, mocking bird, nest, oriole, parrot, robin, sea gull, songster, thrush, twitter, warbling, wings, worms, wren.

Lists were made of the different countries the children had read about in their readers and library books, and these countries were located. A bird common to each country was studied; for example, the ostrich in Africa, the stork in Holland, and the condor in South America. A bird chart was made on which were listed the names of birds that stay with us all winter and those that go south in the winter and north in the summer.

The dimensions for bird houses and bird baths were estimated by the children, and also the cost of paint, nails, lumber, cement, and other materials. Information was obtained concerning the prices of parrots, canaries, and love birds, which are sold in pet shops. The children were interested in the range of prices of birds used for food, such as ducks,

chickens, turkeys, and quail. They also learned the prices of decorative feather pens sold in gift shops.

Bird houses of different shapes, sizes, and designs were made by various pupils. Some of these bird houses were placed on the school grounds and some were taken home. A bird bath was made for the school yard and clay birds were modeled. The making of bird booklets provided opportunity for designing beautiful covers. The children made some feather pens like those sold in stores.

Bird pictures were collected from magazines and advertisements, and a few good prints, including "The Song of the Lark," were bought. A bird picture exhibit was given for the benefit of the school. Two children often used these pictures as a test during the activity period, one checking the other upon bird recognition. Occasionally one pupil would ask to give the test to the entire class. The pupils made riddles describing birds with interesting color combinations. They painted a frieze of birds and trees, and illustrated stories and poems about birds.

Among the songs learned were "The Wood Pecker," "The Oriole's Nest," "Pretty Little Bluebird," and "A Gay Fellow Is Robin Redbreast." Phonographic records used for appreciation were "Bobolink," "Hark! Hark! the Lark," "The Owl," and "To a Humming Bird." A few children learned to imitate some of the bird calls.

The pupils learned many scientific facts about several birds, mainly those concerning their appearance, food, and habits. They found that certain birds should be protected because of their use to man and that others should be eradicated because of the harm they do. Lists were made of birds that are helpful to the farmer and of those that are harmful. The children learned to recognize the calls, appearance, nest, and eggs of different kinds of birds. They also gained information about migration, the period of in-

cubation, how birds build nests, feed the young, and teach them to fly. They were interested to note that birds bathe frequently.

In their nature-study walks the pupils were careful not to frighten birds and not to destroy the eggs. They did not take bird nests to add to their science collection until they found that the nest was one which would not be used again. A child would often find an opportunity to examine eggs and make a report to the class, thus sharing the information with his group. One day a bird that flew into the classroom was caught by the boys. After a discussion the class decided it would not be right to try to keep the captive and they let it go free. The class made a list of birds that are used for food and put after the name of each bird the months in which it is lawful to kill it.

The children presented an interesting assembly program on birds, using as a background the frieze they had made. They recited original poems, riddles, and stories, and gave the calls of several kinds of birds. Songs about birds were a part of the program. The children also exhibited the bird houses they had constructed and explained how they were made.

Several members of the class continued to keep records of birds during the summer. These were in the form of observation notes and charts; some were called bird diaries. Some children became interested in making feeding trays and putting out crumbs and suet on cold days.

Perhaps the most valuable learnings from this study of birds were in the field of natural science. The children learned to know birds, to appreciate their value, and to enjoy their songs and beautiful colorings.

BIBLIOGRAPHY

INDIAN LIFE

- Brandeis, Madeline. *The Little Indian Weaver*. Chicago, A. Flanagan Company, 1930.
- Cory, David. *White Otter*. New York, Grosset and Dunlap, 1934.
- Dearborn, Frances R. *How the Indians Lived*. Boston, Ginn and Company, 1927.
- Deming, Therese O. *The Indians in Winter Camp*. New York, Laidlaw Brothers, 1931.
- Fish, Eleanor. *Tepee and Wigwam*. Chicago, Thomas S. Rockwell Company, 1931.
- Gates, Arthur I., and Huber, Miriam B. *Friendly Stories*. New York, The Macmillan Company, 1930.
- Gecks, Mathilde C., Skinner, Charles E., and Withers, John W. *The Treasure Box, Story and Study Readers, Book Three*. Richmond, Va., Johnson Publishing Company, 1928.
- Industrial Arts Coöperative Service Bulletin, *Pueblo Indians*. New York, Industrial Arts Coöperative Service.
- Keelor, Katharine L., and Sweet, Mayme. *Indian Life and the Dutch Colonial Settlement*. New York, Bureau of Publications, Teachers College, Columbia University, 1931.
- Petersham, Maud and Miska. *The Story Book of Houses and The Story Book of Transportation*. Philadelphia, John C. Winston Company, 1933.
- Stafford, Cora Elder, and Rucker, Pearl. *My Indian Art Book*. New York, Laidlaw Brothers, 1930.
- Tuttle, Florence Piper. *In the Workshop*. New York, Longmans, Green and Company, 1931.
- Wiley, Belle. *Mewanee, the Little Indian Boy*. New York, Silver, Burdett and Company, 1912.

LIFE IN HOLLAND

- Brandeis, Madeline. *The Little Dutch Tulip Girl*. New York, Grosset and Dunlap, 1929.

- Elkin, R. H. *Old Dutch Nursery Rhymes*. Philadelphia, David McKay, 1917.
- Gecks, Mathilde C., Skinner, Charles E., and Withers, John W. *The Treasure Box, Story and Study Readers, Book Three*. Richmond, Va., Johnson Publishing Company, 1928.
- Griffis, William E. *Dutch Fairy Tales for Young Folks*. New York, Thomas Y. Crowell Company, 1918.
- Keelor, Katharine L., and Sweet, Mayme. *Indian Life and the Dutch Colonial Settlement*. New York, Bureau of Publications, Teachers College, Columbia University, 1931.
- Mansfield, Blanche. *Our Little Dutch Cousin*. Boston, L. C. Page and Company, 1906.
- Pennell, Mary E., and Cusack, Alice M. *Children's Own Readers, Book Three*. Boston, Ginn and Company, 1929.
- Perkins, Lucy Fitch. *The Dutch Twins*. Boston, Houghton Mifflin Company, 1911.
- *The Dutch Twins Primer*. Boston, Houghton Mifflin Company, 1917.
- Scantlebury, Elizabeth Ellis. *Little World-Children*. Boston, Ginn and Company, 1928.
- Smith, Mary E. E. *Holland Stories*. Chicago, Rand, McNally and Company, 1913.
- Suzallo-Freeland-McLaughlin-Skinner. *Fact and Story Readers, Book Two*. New York, American Book Company, 1930.
- Thorsmark, Thora. *In Wooden Shoe Land*. Evanston, Ill., Row, Peterson and Company, 1929.

BIRDS

- Bailey, Carolyn Sherwin. *Garden, Orchard and Meadow Stories*. Chicago, A. Flanagan Company, 1929.
- Burgess, Thornton W. *The Burgess Bird Book for Children*. Boston, Little, Brown and Company, 1930.
- Califf, Gladstone. *Permanent Bird Houses*. New York, Bruce Publishing Company, 1924.
- Clark, Bertha. *Belle River Friends in Wings and Feathers*. Chicago, Lyons and Carnahan, 1928.

- Dunn, F. W., and Troxell, Eleanor. *By the Roadside*. Evanston, Ill., Row, Peterson and Company, 1928.
- Dupuy, William A. *Our Bird Friends and Foes*. Philadelphia, John C. Winston Company, 1925.
- Field, Rachel. *The Birds Began to Sing*. New York, William Morrow and Company, Inc., 1932.
- Green, Charlotte Hilton. *Birds of the South: Permanent and Winter Birds*. Chapel Hill, N. C., The University of North Carolina Press, 1933. 277 pages.
- Kinscella, Hazel. *Music Appreciation Readers*, Books I, II, and III. New York, University Publishing Company, 1928.
- Miles, Emma Bell. *Our Southern Birds*. Morriston, Tenn., Globe Book Company, 1922.
- Patch, Edith M., and Howe, Harrison E. *Nature and Science Readers—Book I, Hunting*. New York, The Macmillan Company, 1933.
- Persing, Ellis C., and Peeples, Elizabeth K. *Elementary Science by Grades, Book III*. New York, D. Appleton-Century Company, 1928.
- Thomas, Roy H. *Living Things About Us*. Philadelphia, J. B. Lippincott Company, 1928.

CHAPTER XII

LARGE UNITS OF WORK FOR THE FOURTH GRADE

HOMES IN MANY CLIMATES

THE TEACHER put pictures of Mount Vernon, a home in Siberia, and a home in Eskimo land on the bulletin board. A discussion of these pictures led the pupils to ask questions about the different kinds of homes. Soon the entire group was working, to learn about homes in different climates. Some of the questions which they wanted to answer were: Why do people live in different kinds of houses? How many different kinds of homes are there? What materials are used for houses? Why are some houses high and some low? Why are some houses round? What kind of house is best? What kind of house will last the longest? How does climate affect the kinds of houses people build? What is a home? Is a house a home?

The dictionary was used to determine the difference in the meanings of the words "house" and "home." Selections about homes in America and in other countries were found in readers, language books, geographies, and histories. Later the pupils found other related reading material in their library books and in general reference books, newspapers, and magazines.

Some of the information gained was reported orally to the grade, and some was written in a form suitable for their permanent unit records about houses and homes.

Among the words needed for written reports and compositions were: adobe, apartment, basement, brick, cabin,

caves, cellar, cliff, dwellers, dwelling, gutters, hogan, hut, lumber, pigmy, plaster, plumber, stove, tents, tepee, totem, thatched, wigwam.

The children had access to stories about people who lived in trees, cliffs, caves, huts, log houses, and other types of homes. By discussing these they learned how people had to undergo numerous hardships before they could have the kinds of homes they now have. They also learned many things about the customs of people, their environment, and the ways in which climate determines the different types of homes. They found that the discovery of electricity has brought into the home electric lights, vacuum cleaners, ice refrigeration plants, and other things which make modern life comfortable.

Attention was given to home life in various climates: in Switzerland as representative of life in high mountains where the snows are heavy; in Holland, of low, wet lands; in Central America, of hot, moist lands; in Greenland, of bare, cold countries. The influence of geographical conditions in the selection of materials used in houses was brought out as pupils learned that stone houses were used in New England where rocks are plentiful, and wooden houses in the South and other places where wood is abundant. One-story houses are common where there are frequent earthquakes or volcanic eruptions.

Washington's home was studied as a typical example of a southern colonial home, and Lincoln's as an example of an early frontier home. As the different types of homes were studied, models of some of them were made. A log house large enough for the children to enter and use was built as an example of an early American home as well as a representation of Lincoln's home. Mats, rugs, and other things used in various types of homes were made by the children. The best models were presented to the school museum in

order that other grades might have the use of them when they were studying about people in different climates.

Interesting pictures of homes in many climates were collected and made into a scrapbook. A frieze was painted showing homes and scenes from various countries; also, drawings of homes were made for the "Book of Homes."

This study gave the children information about the people in each country, which helped them to understand their beliefs and customs. The foods used in different parts of the world were of particular interest.

The children learned that fine houses are not required for good homes, but that the way people live in a house determines the kind of home it will be. They also learned that health is an important factor to be considered in building houses and helps to determine the materials to be used and the method of ventilation to be employed. Investigation showed them that paint is not merely a means of making houses attractive, but is also a means of protection for the wood or other material used.

The sizes of various houses in the community were compared. The classroom was measured and compared in size with rooms which they measured at home. An average-sized one-story house in the community was selected by the children for measuring and they became very much interested in estimating the size of a room and then checking their estimates by actual measurements. Estimating and measuring were necessary in building the log cabin which the pupils made to represent Lincoln's home.

While the children were studying about the homes of a certain country, musical selections and songs of that country were frequently sung. Among the songs thus learned were: "My Old Kentucky Home" (for the South); "Blue Bells of Scotland" (for Scotland); "Home on the Range" (for the West); "Japanese Children" (for Japan); "An

Eskimo Ride" (for Eskimo land). Many folk games from the countries studied were learned by the children, such as "Wooden Shoes" (Holland); "Norwegian Mountain March" (Norway); "Pop Goes the Weasel" (America); "Irish Jig" (Ireland).

At the close of the study the children gave an assembly program on "Homes in Many Climates." It consisted of talks about homes, showing pictures and models which the group had made, singing typical songs, and playing folk games. A frieze of homes which they had made and painted was used in the background when the program was given.

In this unit the learnings in the field of social science were particularly valuable. The children learned that there are many kinds of houses and discovered some of the advantages and disadvantages of each. They found that the types of houses used depend to a great extent upon the climate and the materials available in any particular locality. They learned further that the economic conditions of families influence their choice of homes. Habits of living also help to determine the type of home: roving peoples live in tents and people who migrate to new countries often use their old styles of architecture in the new country. The children gained a better understanding of the people in various parts of the world through studying their home lives.

TRANSPORTATION

A pupil brought in a newspaper article about the *Graf Zeppelin* and a picture of the new liner *Europa* and posted them on the bulletin board. A pupil who had been reading in a language book about the boats of the Norsemen, began to compare travel in those days with modern methods.

Questions came up from various members of the group: In how many different ways do people travel? How long did it take Columbus to cross the ocean? How did the In-

dians travel? What is the best way to travel? What is the cheapest way to travel? What is the fastest way to travel? How did people travel when Lincoln lived? How long would it take us to cross the ocean in a boat? How long in an airplane? What kind of boat goes the fastest?

They found that much of the early transportation was by water because there were no roads. The Indian method of marking paths by signs on the trees was compared with our highway signs of today. Lists were made of various modes of travel, such as walking, riding on horseback, on camels, in carts, stagecoaches, buggies, trains, automobiles, buses, trucks, balloons, steamboats, and airplanes. The names of such inventors as Fulton and the Wright brothers, and of such pioneers and explorers as Daniel Boone, Lindbergh, and Byrd, were learned and their achievements discussed.

The pupils also learned that ways of travel depend largely upon geographical conditions, such as streams, mountains, and soil. Man's attempts to control these by bridges, channels, and other devices were interesting to the children. Lists were made of modes of transportation peculiar to certain peoples; for example, the jinrikisha used by the Japanese and the kayak by the Eskimos.

The advantages of having school buses to keep the children from being exposed to bad weather were brought up. The danger of not getting enough physical exercise now that traveling is so comfortable and inexpensive was also discussed. Some dangers of automobile driving were mentioned and it was noted that people who drive cars and buses often have wrecks because someone puts glass, nails, boards, and similar things in the road. They concluded they could help prevent wrecks by being careful about such things. Later, different pupils reported to the group that they had picked up things in the road and thrown them out

of the way. They thought they could help drivers prevent accidents by being careful when they crossed the road or the street and by taking care to walk on the side of the road facing the traffic.

Oral and written reports were made on stories read from books, magazines, and newspapers. Special references were found by various groups, and trips were made to bus stations and to railroad stations and yards. Descriptions of pictures of airplane hangars seen in the movies were reported to the class by various pupils. Some of the reports, stories, and verses were written on the blackboard or in booklets and some were read by the children. The following verse is illustrative:

The Car

The car can go fast,
Because it uses oil and gas
The engine makes a roaring sound,
While the wheels turn round and round.

Oleda.

Letters were written to steamship and railway companies asking for advertising materials. The children wrote reports on topics assigned them by the group and made their own stories about transportation. These were usually bound in booklet form. They found they should know how to spell the following words: automobile, airplane, bus, boat, balloon, Byrd, brakes, ballast, covered-wagon, Columbus, compass, engine, Europa, Fulton, garage, hydroplane, Hudson, hangar, Lindbergh, Mayflower, mechanic, Norsemen, ox-cart, parachute, pilot, Santa Fé Trail, station, signpost, roundhouse, train, Viking, Wright, Zeppelin.

The children computed distances traveled by different modes of transportation and made comparisons of the time

taken. For example, the following problem was worked out: "How much longer did it take Columbus to cross the ocean than it took Lindbergh?" A compass was brought to school and problems involving its use came up.

Models showing various modes of transportation were made. Among these were oxcarts, rafts, covered wagons, automobiles, trucks, airplanes, boats, trains, and buses. One child made a model of the lighthouse near the school. In selecting materials for models the children found that some materials are much lighter than others and that this fact is carefully considered in the selection of materials to use in building boats and airplanes.

Drawings and paintings were made of lighthouses, boats, trains, automobiles, airplanes, etc. Pictorial maps showed routes of travel. One frieze showed the different kinds of boats and another the development of means of transportation from the earliest times up to the present day, and a wall hanging showed modes of travel in different countries. The children learned to appreciate pictures of famous boats and some good ship models.

Some of the songs that the children learned during the development of this unit were "Row, Row, Row Your Boat," "Sailing," and "Airplane Song." They learned to appreciate phonograph records like "Song of the Vikings," "Boat Song," and "The Sailor." During the physical education period some of the children learned to dance the "Sailor's Hornpipe."

This study of transportation was especially valuable for learnings in social science. The pupils learned about modes of travel in different parts of the world, about the influence of geographical conditions on modes of travel and about the effect of modern travel in bringing the people in various parts of the world closer together, thus increasing their interdependence. It was interesting to note that the develop-

ment of transportation has been brought about by man's attempt to control his environment. He has not only invented vehicles for travel but he has also dug canals, deepened water channels, built bridges, cut down mountains, made tunnels, and built various types of hard-surface roads.

SCHOOL ATTENDANCE

When a pupil who had been absent from school returned, she explained that her absence had been due to a severe toothache. The children wanted to make a good attendance record for their room and they felt that in order to do this they must keep well. They decided that they would work to observe the rules of health.

Some of the things which they wanted to know were: How can we keep well and strong? Why are we happier when we are well and attend school? How can we prevent colds? What shall we do if we are caught in a rain and get wet? What shall we eat to make us healthy? Why should we brush our teeth? When should we brush them? How should we brush them? When should we wash our hands? How shall we keep our nails clean? What kind of clothing shall we wear? How shall we care for our clothing? What kind of shoes shall we wear? How often do we need to take a tub bath? Why do we need to change all our clothes for sleeping? How often shall we wash our hair? Why do we feel better when we are clean?

The pupils read health materials, which included many stories, poems, rhymes, songs, and rules found in readers, health books, and pamphlets. At the pleasure reading period material on cleanliness was read by individuals and groups. Original rhymes about health and school attendance were written, and a health play was given at the assembly period.

Some words which the pupils learned to spell in this

study are: absent, attendance, bath, bandage, cold, clean, exercise, hair, iodine, mercurochrome, present, soap, sleeping, teeth, toothache, toothbrush, toothpaste, washing.

The pupils kept an attendance record chart for their room, on which they recorded the number of pupils present each day and the number absent. They learned how to compute the average daily attendance for a month. They secured information about the cost of going to the dentist, of having a doctor come to the house, of going to the doctor's office, of employing a nurse for a week, and of having tonsils removed. They worked problems that arose when it was necessary to buy things for the first-aid cabinet and to fit up a first-aid corner. Problems came up about the cost of articles pertaining to cleanliness, such as toothbrushes, toothpaste, soap, wash cloths, handkerchiefs, and clothing.

Interesting discussions arose when children told about conversations with their parents about their own school activities. Their parents had told them about the poor educational opportunities which they themselves had had. The children learned from their parents many interesting facts about old-fashioned remedies and superstitions. One of these was that a small bag of asafoetida worn on a string around the neck would prevent illness. They learned that cleanliness prevented the spread of many diseases.

It was learned that in China people pay the doctor to keep them well instead of waiting until they are ill and then sending for the doctor as many of our people do. They learned that much of our medicine is imported from China and other countries; as the different countries were mentioned they were located on maps. These things led the children to an interest in foreign countries. They learned that in olden times there was no soap, and that stones were used for rubbing the dirt out of clothes.

They learned that many medicines, such as camphor and quinine, come from trees.

The children made health posters and a first-aid cabinet and arranged a first-aid corner. The first-aid corner was fitted up with a couch made from a wooden box, a mattress, and a pillow made by the children. With the help of the teacher and their parents the children made a soft soap. The pupils had some practice in first-aid work.

Pictures were painted of activities in the home and school. Suitable colors were selected for the cabinet and the couch cover. Figures were drawn to show correct and incorrect positions for standing and sitting.

The children gained a great deal of information concerning health, learned practical health habits in the school, and were encouraged to continue them in the home. There was increased interest in cleanliness and in prevention of the spread of disease. Through study and experience the children learned that when they are clean and neat they feel better; when they feel better they can do better work; when they are well and attend school they are happier. They became more careful about their clothes and habits of personal cleanliness. They shared their first-aid corner with the pupils of other grades when anyone was not well or when there was an accident in a room or on the playground. School attendance was improved and absence became a rare thing among these children.

BIBLIOGRAPHY

HOMES IN MANY CLIMATES

- Atwood, Wallace W., and Thomas, Helen Goss. *Home Life in Far-Away Lands*. Boston, Ginn and Company, 1928.
- Bonser, Frederick G., and Mossman, Lois C. *Industrial Arts for Elementary Schools*. New York, The Macmillan Company, 1928.

- McGuire, Edna, and Phillips, Claude Anderson. *Adventuring in Young America*. New York, The Macmillan Company, 1929.
- Petersham, Maud and Miska. *The Story Book of Houses*. Philadelphia, John C. Winston Company, 1933.
- Stafford, Cora Elder, and Rucker, Pearl. *Art Appreciation Text Books*, Books I-VII. Chicago and New York, Laidlaw Brothers, 1930.
- Stephenson, Mary Bowen. *Caves, Tents and Houses*. Chicago, Thomas S. Rockwell Company, 1931.
- Verpilleux, E. A. *The Picture Book of Houses*. New York, The Macmillan Company, 1930.
- Winslow, Leon L. *Elementary Industrial Arts*. New York, The Macmillan Company, 1922.

TRANSPORTATION

- Barrows, Marjorie. *The Magic Umbrella Abroad*. Chicago, Thomas S. Rockwell Company, 1930.
- Hader, Bertha and Elmer. *The Picture Book of Travel*. New York, The Macmillan Company, 1931.
- Hardy, Marjorie. *New Stories, Child's Own Way Readers*. Chicago, Wheeler Publishing Company, 1929.
- McGuire, Edna, and Phillips, Claude Anderson. *Building Our Country*. New York, The Macmillan Company, 1929.
- *Adventuring in Young America*. New York, The Macmillan Company, 1929.
- O'Brien, John S. *Byrd's Dogs*. Chicago, Thomas S. Rockwell Company, 1931.
- Patch, Edith M., and Howe, Harrison E. *Nature and Science Readers—Book Three, Surprises*. New York, The Macmillan Company, 1933.
- Peary, Marie Abnighito. *The Red Caboose*. New York, William Morrow and Company, 1932.
- Pennell, Mary E., and Cusack, Alice M. *The Children's Own Readers—Book Four*. Boston, Ginn and Company, 1929.
- Petersham, Maud and Miska. *The Story Book of Transportation*. Philadelphia, John C. Winston Company, 1933.

- Talbot, Frederick A. *Lightships and Lighthouses*. Philadelphia, J. B. Lippincott Company.
- Webster, Hanson Hart. *Travel by Air, Land and Sea*. Boston, Houghton Mifflin Company, 1933.

SCHOOL ATTENDANCE

- Andress, J. Mace. *Boys and Girls of Wake-Up Town*. Boston, Ginn and Company, 1924.
- *A Journey to Health Land*. Boston, Ginn and Company, 1924.
- and Bragg, Mabel C. *The Sunshine School*. Boston, Ginn and Company, 1928.
- Burkard, William E. *Health by Doing*. Chicago, Lyons and Carnahan, 1931.
- Chambers, Raymond L., and Maroney, Frederick. *Health Stories and Practice*. Chicago, Lyons and Carnahan, 1931.
- McGuire, Edna, and Phillips, Claude Anderson. *Adventuring in Young America*. New York, The Macmillan Company, 1929.
- Towse, Anna B., and Gray, William S. *Health Stories, Book One*. Chicago, Scott, Foresman and Company, 1933.
- Towse, Anna B., Gray, William S., and Matthews, Florence E. *Health Stories, Book Two*. Chicago, Scott, Foresman and Company, 1934.
- Turner, C. E., and Collins, Georgia B. *Health*. Boston, D. C. Heath and Company, 1930.
- Turner, C. E., and Pinckney, Jeanie N. *In Training for Health*. Boston, D. C. Heath and Company, 1929.
- Williams, J. F., and Dansdill, Theresa. *Health and the Rules of the Game*. New York, Benjamin H. Sanborn and Company, 1931.

CHAPTER XIII

LARGE UNITS OF WORK FOR THE FIFTH GRADE

A STUDY OF AVIATION

TALKS OVER the radio and newspaper articles about the trip of the *Graf Zeppelin* around the world built up an interest in aviation. An airplane passing over the school just at the close of the recess period started a discussion. The entire class became interested in learning about different modes of air travel and how men learned to travel in the air. They visited a monoplane that had alighted in a field near by and examined it thoroughly. They talked with the pilot and learned many interesting things about the plane.

They asked many questions. What is an airship? What is a dirigible? What is a zeppelin? What makes a balloon go up? What makes it come down? How did people first travel in the air? When was the airplane invented? Who invented it? Did the Wright brothers really make the first successful flight? Where is Kill Devil Hill? Could we go there? What makes the airplane go up and what makes it stay up? Can balloons that do not have engines be guided? What are the different kinds of airplanes? What is a parachute? Why does a propeller have curved blades? How does a seaplane differ from an airplane? What is the average rate of speed for an airplane? Who are our greatest aviators today? What airships are the most noted today? How does it feel to ride in an airplane? Is it very expensive to ride in one?

The more recent readers and reference books which con-

tained stories about aviation and aviators were constantly in use by the pupils. As a result of this interest, newspaper and magazine articles, pictures, and other materials were brought to the classroom. The best of these were filed in notebooks or folders and became the property of the class. The poem, "Darius Green and His Flying Machine," was read by the group. The abundance of reading material on aviation in the daily papers and in popular science magazines stimulated reading and discussion. Stories and poems about flying were written by the children. They were interested in reading in the papers that United States senators and congressmen and important business men often get to their appointments by air. They read newspaper accounts of victims of accidents being taken to hospitals by air, and of medicine and food being rushed by airplane to regions where there are epidemics. They were impressed by the way in which the Mississippi flood sufferers were reached by air when they were cut off from the ordinary means of transportation.

Written work was necessary in keeping records of references, in recording information about various methods of traveling by air, and in making books about aviation.

Some words that the pupils learned to spell are given here: airplane, airport, airship, balloon, beacon, biplane, Byrd, direction, dirigible, gliders, guidable, hangar, Lindbergh, mechanic, monoplane, parachute, pilot, propeller, steered, triplanes, Zeppelin.

The following are examples of problems which they made and solved: (1) Find out how much gas is consumed in traveling 100 miles in a small monoplane and compare this amount with the amount consumed in traveling 100 miles in a Ford automobile. Find the difference in cost. (2) Compare the amount and cost of gas required for traveling 100 miles in the *Graf Zeppelin* with the amount and cost of that

required for 100 miles in a large transportation bus. (3) Compare the time it took Lindbergh to cross the ocean with the time it took Columbus. (4) Find out how much less time is required to go from New York to Los Angeles by airplane than by train.

The development of aviation was traced from the early types of balloons to the different modern types of balloons and airplanes. Stories about the Wright brothers and their success in North Carolina in 1903 were especially interesting to the children because they lived in Eastern North Carolina. Some children who had visited the memorial to the Wright brothers at Kitty Hawk told the class about their trip. Lindbergh's flights were traced on the maps. Byrd's activities at the South Pole were followed with interest, and the bulletin board was frequently supplied with items about "Little America." Materials from daily newspapers and magazines kept the study up to date. Pictures of Lindbergh, Byrd, and other noted aviators and of the *Spirit of St. Louis*, the *Graf Zeppelin*, the *Los Angeles*, and other famous airships were collected. The use of air travel for the army and navy was discussed and maps were made showing important aerial routes. A state map was outlined and the airports located on it.

During a study of the development of traveling in the air, from balloons to the present-day airplane, the children were engaged in related activities. They made kites and flew them; models of balloons and airplanes; records of places where information about aviation could be found; and scrapbooks, notebooks, and folders in which to keep the clippings, pictures, and records for references. They filed the magazine pictures and clippings they collected.

Covers were designed for the pupils' booklets and many drawings were made of balloons and airplanes. A frieze beginning with balloons and showing the development of

aviation was painted. After the pupils had decided on the parts of the frieze that different pupils should make, all worked together and were appreciative of the efforts and work of one another. Many of the children made more than one attempt before they were willing to accept their own work. Suitable pictures from the collection of pictures on aviation were selected and studied for their æsthetic values.

"Oh, Ship of the Air" and other suitable songs were sung.

The pupils learned some things about the construction of balloons, why they go up and how they are brought down; the different parts of an airplane and their uses; what makes an airplane go and how it is guided.

The qualifications of a good pilot were listed and the children noted some of the habits which help pilots to develop great powers of endurance. Information about the lives and habits of Lindbergh and other famous aviators was eagerly sought and read by the pupils.

In studying about aviation and making a collection of materials, the pupils were interested in arranging them for permanent use in the school and wished to continue to make contributions. Their study led them to an interest in different ways of traveling by land.

The children gained a broader understanding of the influence of the development of the airplane on our social and economic conditions. They learned that the airplane industry gives employment to many thousands of people and that airplanes and materials used in their construction are a great factor in the trade relations of the countries. A real economic situation was provided by the fact that wealthy people came by airplane to hunt and fish in the neighborhood where the children lived, and used many of the children's fathers as guides. They learned to appreciate the fact that air travel is the fastest mode of travel and the importance of

this factor in some business matters and in cases where the life of a patient depends upon getting him to a doctor at once or upon bringing help quickly.

POTTERY OF THE NATIONS

The teacher took a piece of native pottery to the classroom and used it on her desk for flowers. A few days later she put pictures of various kinds of pottery on the bulletin board. These included magazine pictures, pictures found in pamphlets advertising pottery, and a picture of Egyptian pottery taken from the lid of a cardboard box which had been a container for a bottle of perfume. The first-grade children had been making pottery, and the fifth-grade children, who had not had that experience, wished to try it. They expressed a desire to learn about the kinds of pottery that are made in different countries.

Questions came up about pottery and the making of it. Why is some clay black, some red, and some brown? Why does the clay that we find near water crack after it gets thoroughly dry? What kind of clay is best for pottery? Where can we get good clay? How do people make pottery of different colors? Where shall we keep our clay? How shall we keep it moist? How shall we divide our work so that everybody may work on pottery? What shall we do when we work in clay to keep ourselves and our classroom clean? If we start a piece of pottery one day and do not finish it, how can we keep the clay moist so that we may work on it another day? Why did the bowl we tried to fire in a furnace look like a brick? What is done to clay in order to get it ready for use? How can we make a potter's wheel? What makes the clay stick to the potter's wheel?

The study of pottery stimulated interest in reading, and there was a great deal of material available on this subject. One of the newly adopted second readers contained some

accounts of Indian pottery, and the pupils who had reading difficulties read them and gave a report. Pamphlets were read by all pupils, and encyclopedias were used for reference work. The children read about the opening presentation of the Passion Play, which is presented every ten years at Oberammergau; and Anton Lang, who formerly played the part of Christ in the play, was of interest to them because he was a potter. They read the "Potter's Song" from "Keramos," by Henry Wadsworth Longfellow, and "The Potters," anonymous.

Committees who went to various classrooms for research work made written reports, and records were kept of the work done each day. They wrote to pottery plants and to gift shops that sell pottery, asking for pamphlets and catalogs for the permanent school files.

Some words which the children learned to spell are: ceramic, clay, coil, design, Dresden, dye, firing, kaolin, kiln, majolica, mesh, moisture, Navajo, plaque, pottery, residual, slip, slush, tile, ware, Wedgewood.

Records were kept of the cost of various kinds of clay, shellac, paint, and sandpaper. The total cost of these was found and also the cost per pupil. The pupils calculated the cost of various pieces of pottery they had made and compared these prices with those of American pottery and imported pottery. They learned that there is a duty on imported pottery and found out why this duty is imposed.

The early use of pottery for storing grain and for carrying water was studied. The pupils learned that some of the earliest remains of civilization are in the form of pottery and that records on pottery indicate different periods. Stories and articles about excavations were frequently brought to class. They were surprised to learn that the oldest pottery plant in the United States was established in

their own state (North Carolina) in 1742; and the next oldest in Pennsylvania in 1750.

They made a map of North Carolina showing the location of pottery plants and clay deposits. Information for this came from the State Agricultural College. They learned that their own state is divided into five clay belts, has kaolin in great quantities, and has every known kind of clay. Clay was not found in sufficient quantity and quality to warrant pottery plants in their locality. Important pottery plants were located on the United States map, and pictures showing the pottery of foreign countries were brought to the classroom. A frieze was made showing pottery typical of different nations with characteristic scenes from the countries represented as the background.

A special table for clay work was made and covered with oilcloth. Information concerning the preparation of clay was obtained.¹ Each pupil in the class made at least one piece of pottery, and several made many pieces. These articles included vases, bowls, book-ends, urns, match-holders, ash-trays, pitchers, jugs, mugs, plaques, wall vases, candle-holders, and paper-weights. The coil method was used in making most of these. The best pieces were either fired or shellacked and painted. Those that were to hold water or other liquids were shellacked five times and painted with a good enamel paint or painted with alabastine first and then shellacked. A crude potter's wheel was made by using a flower stand and attaching a round eight-inch board on it in such a way that it would revolve. A furnace for firing the pottery was made in the yard.

All pupils worked on the large unit, but individual children did different things on different days. Some made the pottery while others hunted materials or wrote reports and

¹ Frederick G. Bonser and Lois Coffey Mossman, *Industrial Arts for Elementary Schools* (New York, The Macmillan Company, 1928), Chap. X.

made records of references which contained information on the subject. Some children drew designs to use on pottery, some smoothed pieces they had made, others painted their pieces, and still others drew or painted on the frieze which showed pottery characteristic of the various nations.

The children worked individually and in groups. They were glad to recognize good work done by any member of the class. They were careful not to break any of the pottery made. Each child had a piece of pottery to carry home, and the class as a whole shared the results of their work with others. A large bowl was left for the classroom; a vase and a wall hanging were sent to the county exhibit; vases were presented to the teacher and to the supervisor who had given special help in this unit of work.

Pictures of various kinds of pottery were studied because of interesting shapes and designs, and this stimulated the children to attempt new shapes and designs. One boy made a vase that he painted green with a black band around the top. Just below the band was a row of small black goats. This represented pottery from Switzerland. Other pieces were made to represent types of pottery previously illustrated on a frieze.

The children learned to recognize and appreciate the following kinds of pottery: Poole, majolica, Japanese, willow ware, Danish, Lang, and native pottery. They soon learned to distinguish hand-turned pottery from the machine-made variety and to appreciate some of the old jars their mothers had. The home demonstration agent arranged an exhibit of good native pottery from another section of the state. Both parents and children enjoyed the exhibit and as a result some pieces were bought for their homes.

While many articles the children made were copies of pictures or of objects they had seen, some were original. One boy made a wall hanging which represented his idea of

the Indians making pottery. This wall hanging showed Indian wigwams, a piece of pottery being fired, and an Indian in a canoe, going out to procure more clay.

The pupils became interested in learning more about soils. They learned that clays are colored by minerals or mineral deposits present in the soil. They found that clay which contains much sand will crack when it is dry and that it must be kept damp for modeling. As they read about pottery, they gained some information about the different materials needed in china and glass making and the processes involved. This opened new avenues of interest which were followed by a few members of the class.

The chief value of this unit of work lies in the increased appreciation of the artistic values of good pottery. The children came to understand that the value of an article often lies more in the workmanship than in the materials used. They learned to appreciate good colors, form and design, and something of how the backgrounds of peoples are expressed in art. They came to understand the actual process of pottery making and thus gained many meanings of interest and value to them. They studied pottery making as an industry and discovered that the members of some communities are almost all engaged in this industry and that in some families this has been their means of livelihood from generation to generation.

A STUDY OF CLOTH

On Friday, a pupil announced that he was planning to go with his father on Saturday to a cotton gin. The group asked for a report of the visit. Before the pupils arrived on Monday, the teacher placed pictures of cotton and samples of cotton, wool, linen, silk, and rayon cloth on the bulletin board. The child's report, along with the materials

on the bulletin board, led the children to become interested in a study of cloth.

Some of the things that they wanted to know were: How many kinds of cloth are there? Who made the first cloth? How can cloth be made from a plant? How is cotton made into thread? How is wool made into thread? How is thread made into cloth? How does the silkworm weave his cocoon? What happens to the silkworm when his cocoon is used? What is linen made of? How is it made into thread? What is rayon? How is it made? Where are the different kinds of cloth made? How shall we know which kind of cloth to select?

The pupils read in their geographies about places where cotton and flax are grown. In their readers and reference books they read stories about the silkworm and the raising of sheep. They wrote for pamphlets about the manufacture of silk, cotton, wool, and rayon and added them to their reading center. Information about the early use of cotton, linen, wool, and silk was collected and studied. The development of weaving was traced from the home to the factory. A report on the manner in which China so long guarded the secret of silk making led one group to make a special study of the development of the manufacture of silk. Cotton and flax plants were studied, and the group learned how rayon is made and how silk is produced. They secured samples of cloth and of materials showing stages in the production of various kinds of cloth. The samples and exhibits secured were carefully classified, labeled, and filed, in order that they might be used in later work or by other grades.

The children were interested to learn that the largest hosiery mill in the world, the largest damask mill in the world, and the largest denim mill in the world are located in North Carolina. After they had learned about these places in their own state, they collected similar facts about other

states and countries noted for the production of textiles. Lists were made of places which are important sources of raw materials for cloth and of places noted for the manufacture of materials. These places were located on maps. Articles concerning the market and overproduction of cotton were read in the newspapers. Fashion magazines were studied, especially by the girls, to learn about the materials suitable for various types of clothing.

There were many oral reports based on the articles read. The members of the class discussed the reports and made plans for carrying on the unit of work. Records were kept of the work and, in the booklets which the children made, the different steps in cloth making were shown. Letters were written asking for samples of cloth, bulletins about cloth, and exhibits showing the various stages in manufacturing cloth. Some words which the pupils learned to spell while studying about cloth are as follows: bale, bolls, boll weevil, China, cloth, cocoon, cotton gin, dyed, factory, fiber, flax, India, invented, linen, rayon, Scotland, spin, shuttle, staple, thread, warp, woof, woven, yields.

The daily quotations from the cotton market furnished the pupils data for practical problems because cotton furnished the means of livelihood for some of their families. The prices of clothing made of cotton, silk, linen, and rayon were compared. Problems similar to these were given: (1) Mary can buy silk for a dress at two dollars a yard or voile at fifty cents a yard. It takes two and a half yards to make her dress. How much money will she save if she buys the voile instead of the silk? (2) John can buy a shirt for a dollar and a half. His mother will need two yards of material to make a shirt for him. How much money will he save if he buys material at thirty cents a yard instead of buying a ready-made shirt?

The pupils went to visit an old lady who had a spinning

wheel. After they had watched her spin for a while, some of the children tried to spin. They also visited a home in which a woman was weaving rugs on a loom. Later, the boys made knitting needles for the girls and a frame for weaving. The knitting needles were made of chinquapin and gall berry branches. The bark was scraped off with pocket knives, and glass was used for making them smooth. After the needles were dried a short time in the sun or by the fire, they were ready for use. The pupils made one book which contained information about cloth made from plants, such as flax and cotton, and another about cloth made from animals, such as sheep and silkworms. These books contained samples and information about processes used in making cloth.

Pictures were drawn of cotton and flax plants, of a cocoon, and of trees used for rayon. Pieces of homespun and textiles with historical designs were examined. Included in these were coverlets, prints, samplers, hooked rugs, and woven rugs. These were brought to school by the children, by the teacher, and by the supervisor. The group became interested in old quilts owned by their parents. Descriptions were given of some quilts and others were brought to school. Such patterns as "Young Man's Fancy," "Tree of Life," "Log Cabin," and "The Rising Sun" were included in the collection. Some of the girls made individual collections of quilt patterns. Color, line, and design were discussed and the beauty of the hand work was noted. Original designs were made by both boys and girls. The pupils also learned to appreciate "The Spinning Song," by Mendelssohn.

Discussions of the use and care of their clothing led to the following conclusions:

Woolen clothes are best for cold weather.

Cotton and linen are suitable for school wear because they are easily laundered.

Coats and hats should not be worn in the house because they are for protection when one goes out of doors.

We should not wear our best clothes for work or rough play.

Our clothes will wear longer and look better if we keep them mended.

We should keep our dresses or suits on hangers when not in use.

Good materials look better and are usually cheaper in the end because they last longer.

The classroom served as a laboratory where the pupils could use some of these suggestions. Coats were placed on hangers, clothes were mended when torn, and wet coats were placed where they would soon dry.

This study of cloth gave the pupils a knowledge of the different kinds of cloth. They learned about the sources of materials and the processes which are used to change the raw material to the finished products. They became familiar with types of weaving and had some experience with simple looms. Information gained from parents and grandparents and from the study of old quilts, coverlets, and other articles made by their ancestors gave them a better understanding of life in earlier times and increased their appreciation of the knowledge possessed by their parents. They learned to recognize the characteristic features of cotton, silk, wool, and rayon. They gained information which was of practical use in the selection and care of their clothing. Data on contributions made by various nations to the development of textiles showed the dependence of one nation upon others and the world-wide importance of the textile industry.

BIBLIOGRAPHY

A STUDY OF AVIATION

- Aitchison, Alison E., and Uttley, Marguerite. *North America by Plane and Train*. Indianapolis, Ind., Bobbs-Merrill Company, 1931.
- Dobias, Frank. *The Picture Book of Flying*. New York, The Macmillan Company, 1931.
- Engleman, F. E., and Salmon, Julia. *Airways*. Boston, D. C. Heath and Company, 1931.
- Harney, Laura B. *The Skycraft Book*. Boston, D. C. Heath and Company, 1932.
- Heile, Maryanna. *The World's Moods*. Chicago, Thomas S. Rockwell Company, 1930.
- Hill, Howard C., Lyman, Rollo L., and Moore, Nelle E. *Reading and Living, Book Three*. New York, Charles Scribner's Sons, 1930.
- Humphreys, Pauline A., and Hosey, Gertrude. *Romance of the Airman*. Boston, Ginn and Company, 1931.
- McGuire, Edna, and Phillips, Claude Anderson. *Building Our Country*. New York, The Macmillan Company, 1929.
- Webster, Hanson Hart. *Travel by Air, Land and Sea*. New York, Houghton Mifflin Company, 1933.

A STUDY OF POTTERY

- Bonser, F. G., and Mossman, Lois C. *Industrial Arts for Elementary Schools*. New York, The Macmillan Company, 1928.
- Clark, Marion G., and Gordy, Wilbur Fisk. *Westward Toward America*. New York, Charles Scribner's Sons, 1929.
- Eckford, Eugenia. *Wonder Windows*. New York, E. P. Dutton and Company, 1931.
- Gecks, Mathilde C., Skinner, Charles E., and Withers, John W. *The Treasure Box, Story and Study Readers, Book Three*. Richmond, Va., Johnson Publishing Company, 1928.

- Industrial Arts Coöperative Service Pamphlets: *Outdoor Firing; Pueblo Indians; Decorating Indian Pottery; Homemade Kiln; Colonial Pottery*. New York, Industrial Arts Coöperative Service.
- Stafford, Cora Elder, and Rucker, Pearl. *Art Appreciation Text-books*, Parts 1, 2, 3, 4, 5, and 6. New York, Laidlaw Brothers, 1930.
- Wickham, Ola, and Phillips, Claude Anderson. *America's Heritage from the Long Ago*. New York, The Macmillan Company, 1931.
- Winslow, Leon L. *Elementary Industrial Arts*. New York, The Macmillan Company, 1922.

A STUDY OF CLOTH

- Allen, Nellie B. *Cotton and Other Useful Fibers*. Boston, Ginn and Company, 1929.
- Brandeis, Madeline. *The Little Indian Weaver*. Chicago, A. Flanagan Company, 1930.
- Claxton, William J. *Cotton and the Spinner*. London, Blackie and Son.
- *Silk and the Silk Worker*. London, Blackie and Son.
- *Wool and the Weaver*. London, Blackie and Son.
- Fisher, Anthony R. *This Man-Made World*. Chicago, Thomas S. Rockwell Company, 1931.
- Hardy, Marjorie. *Best Stories, Child's Own Way Series*. Chicago, Wheeler Publishing Company, 1929.
- Holbrook, Florence. *Cave-Mound and Lake Dwellers*. Boston, D. C. Heath and Company, 1911.
- McGuire, Edna, and Phillips, Claude Anderson. *Adventuring in Young America*. New York, The Macmillan Company, 1929.
- *Building Our Country*. New York, The Macmillan Company, 1929.
- Patch, Edith M., and Howe, Harrison E. *Nature and Science Readers—Book Three, Surprises*. New York, The Macmillan Company, 1933.

- Petersham, Maud and Miska. *The Story Book of Clothes*. Philadelphia, John C. Winston Company, 1933.
- Sage, Elizabeth. *Textiles and Clothing*. New York, Charles Scribner's Sons, 1930.
- Shillig, Elnora. *The Four Wonders: Cotton, Wool, Linen, Silk*. Chicago, Rand, McNally and Company, 1913.
- Stafford, Cora Elder, and Rucker, Pearl. *My Wonderland Art Book*. New York, Laidlaw Brothers, 1930.
- Trilling, Mabel B., and Williams, Florence. *Art in Home and Clothing*. Philadelphia, J. B. Lippincott Company, 1928.
- Watson, Elizabeth. *The Story of Textiles*. New York, Harper and Brothers, 1928.

CHAPTER XIV

LARGE UNITS OF WORK FOR THE SIXTH GRADE

BEAUTIFYING THE CLASSROOM

ON THE FIRST DAY of school the teacher and the pupils talked about their work for the year. They decided that their classroom should be a place where they could work together and live together happily during the school year. They described the kind of a room they would like to have; they considered the purposes of the schoolroom and decided that it should be a place where everyone could work on interesting things; they discussed the furnishings of the room and what might be done to improve its appearance. They decided they should like to work to make their classroom more attractive in itself, and a better place in which to work.

Several questions came up. How can we make our room more attractive? What shall we do first? Shall we bring pictures? What kinds of pictures shall we bring? How many shall we put on the walls? What shall we do with the pictures we do not hang? What other things shall we put on our walls? How many plants shall we have? What kinds of plants? Where shall we keep them? Who will care for the plants and arrange fresh flowers? Should we make a table or a case for our science collection? Would someone give old chairs for our reading center? Who will bring old inner tubes to be used in weaving seats for the chairs which have been given for the reading center? Where shall we have our reading center, our art center, and

our science center? Shall we make curtains for the windows? How shall we make our bulletin board useful and attractive? How high should our reading table be? What color shall we paint the furniture in our reading center? Shall we use different colors of paint for the different centers? How can we make a good newspaper rack? What kind of magazine holder shall we make? What other things shall we make? Where shall we get the money to do these things?

The children read articles about school equipment, paints, color combinations, materials suitable for upholstering school furniture, wall hangings, curtains, the proper care of furniture, and materials for dyes. Materials on the bulletin board and magazines and newspapers in the classroom stimulated reading. These selections were not only interesting reading materials but also were the basis of much oral discussion. The pupils kept written records of their activities and wrote letters asking for information or ordering materials to be used in the schoolroom.

Some words frequently used in their oral and written work were: adequate, artistic, chintz, completed, cretonne, denim, discarded, durable, easel, estimate, friezes, responsibility, shellac, suitable, upholstering, utility.

In planning the work, the children made estimates of the cost of each piece of furniture they wished to make and these were later compared with the actual costs. Records were kept of the money made and spent. Measurements were necessary in making curtains, tables, and other furnishings.

Historical and geographical prints and friezes were used for wall hangings. As a result of class discussions, the sources of paint, cloth, wood, and other materials were traced by some of the pupils. Interest was shown in the historical development of school furniture and equipment,

and an old slate and some rare copies of old books were brought to school.

When planning the furniture to make, the pupils considered durability, appearance, and the possibilities of available materials. They found pictures of various types of chairs and tables for reading and noted the characteristics of these. It was found that the chairs and tables used in homes are usually too expensive for a schoolroom. The children wove strips of inner tubes into seats for chairs that had been discarded by some of the parents, and used these chairs in the reading center. They constructed an easel, tables, a case for science specimens, a newspaper rack, a magazine stand, a bulletin board, and a filing cabinet. They made cushions for window seats, curtains for the windows, wall hangings, scrapbooks for various collections, portfolios for art materials, and many other articles. They collected the materials and arranged them for use in the various centers of interest. They learned that many useful and beautiful articles could be secured at little or no cost. They worked together harmoniously and criticized one another's work in a friendly way. Many times several pupils worked on the same article, each doing the thing he could do best in order that the finished product might be as satisfactory as possible.

An art gallery consisted of a special bulletin board on which famous pictures could be placed, wall pockets, and a portfolio for keeping additional pictures. These materials included reproductions of old masterpieces and of modern works of art. Art scrapbooks and books on picture study were kept in the art center. A table and two chairs were placed near the art gallery in order that the pupils might use it freely when they were not engaged in other activities. Color harmony and the lighting of the room were studied in order to determine the color to use for the furniture and

other equipment. The pupils learned that cool colors are usually best for rooms that have a great deal of light. Interesting designs were made for cushions, book-ends, pottery, magazine racks, and other articles. The friezes were painted on kraft paper and the wall hangings on cloth. One bulletin board often contained pictures of famous musicians and articles and pictures about music and musicians.

A special science center was arranged, and the specimens brought by the pupils were kept in a case constructed by them. The class made a science record book which gave information about the specimens. They learned that it is often inadvisable to have many flowers in the room but that a few growing plants help to purify the air. They experimented in order to find the best way to adjust their curtains and windows.

The children became interested in beautifying their own homes. They often told the teacher about rehangng pictures, repairing and refinishing old furniture, and making other changes at home. Parents often made suggestions to their children which were useful in the classroom activities.

The pupils learned to appreciate utility and beauty in furniture, and they were more careful in their use of school furniture and other school property. They learned that a well furnished room is one that is usable and comfortable, and in selecting materials to use in the classroom they considered their cost and utility and whether they could be easily cleaned. Their furniture was movable and could be arranged for a special luncheon or pushed aside in order to make room for folk games with phonograph or mouth harp accompaniment. Pupils frequently expressed their pleasure and pride in their room. They seemed especially pleased to have visitors from other schools.

A SCHOOL GARDEN

In working out plans for a school lunch the problem arose of securing the food. One child suggested that a school garden would help. After several discussions of possible ways and means, the pupils asked the principal if they might use one corner of the school grounds for a garden. This could be done because the yard was large, and sufficient space was left for a playground.

Soon the group was working to have a good school garden with many kinds of vegetables. Some of the questions they asked are given here: How shall we prepare the ground for planting? What vegetables shall we plant? Where shall we get the seeds? Who will plant them? Why should we test seeds? Shall we grow flowers in our garden? What kind of fertilizer do we need? How much of it do we need? How shall we put the fertilizer on the ground? When shall we put it on? What shall we do with the vegetables we do not eat?

Many materials that were useful in this unit of work were found in science readers and other science books, general reference books, catalogs from reliable seed houses, bulletins from the State Agricultural Extension Service and the United States Department of Agricultural Extension Service, newspaper and magazine articles about vegetables, and market quotations in the daily papers.

Several histories were used in the search for information concerning the development of tools for farming. The children learned how the potato and tobacco were introduced into Europe by the first English explorers of Carolina, and they were interested to know of the early belief that tomatoes were poisonous.

The effect of climate, rainfall, and soil on plant growth was studied and physical maps were sketched. The native

homes of many plants were located. The names of certain foods that are widely used in different countries were listed with the names of these countries; for example, Rice: Japan.

The pupils made reports on their reading, on the work done in the garden, on the growth of the plants, and on general conditions in the garden. These furnished materials for oral and written English work. Records were kept of the work done in the school garden and of the planting and growth of vegetables. Letters were written asking for catalogs and for government bulletins that would give useful information about gardening. While this work was being carried on the children learned to spell the following words: cabbage, carrots, collards, cultivate, fertilizer, kale, lettuce, moisture, mustard, nitrate, okra, onions, parsley, parsnips, plowshare, prepared, radishes, rutabagas, spinach, vegetables.

The pupils measured the garden plot to make the rows equidistant. They kept account of the money spent on the garden and estimated the cost of things donated. They read the daily market quotations for fresh vegetables, and made problems about their vegetables, estimating the amount they would get if the vegetables were sold on the market. They used mensuration tables when measuring their garden and laying out the plots and rows. They estimated the amount of vegetables required to serve certain numbers of people and decided how to dispose of the vegetables not used at school.

The pupils plowed the ground, planted the seeds, set out plants, used fertilizer, tilled the soil, pulled up weeds, and prepared the vegetables for use. As the vegetables matured, they prepared and served some of them in their classroom. The girls prepared a vegetable salad and served it at a class party.

Still-life studies of vegetables and pictures with agricultu-

ral settings, such as "The Gleaners," were studied. A frieze was made showing the life history of a plant. Drawings of the different plants in the school garden were kept in a garden booklet which had an attractively lettered cover.

The food values of the various vegetables were noted and discussed and in this way the children learned the importance of eating green vegetables. They also learned the differences between starchy and green vegetables and why the latter should be eaten freely. By consulting cookbooks the pupils found new ways of preparing vegetables. The reports that they made to the class caused other pupils to try new ways of cooking vegetables, and the satisfactory results caused the children to eat more vegetables. Working in the garden gave the girls and boys an opportunity for more outdoor exercise.

The children experimented by planting some vegetables without fertilizer. When these plants were compared with those which had been fertilized, it was found that the fertilizer made the plants grow larger and faster. Before planting was begun, seeds were tested to see if they would germinate. In deciding where to plant seeds, the soil was examined in different places, and plants from the different soils were examined and compared. Samples of various kinds of soils and plants found in the community were collected. The children planned to sow peas after the vegetables were gathered, in order that the soil would be in good condition the next year. A study of garden vegetables showed that dyes and starch are made from some of them.

Help had been received from people in the community, and the children showed their appreciation by sharing plants from their garden with those who had helped them. When school closed they gave the vegetables that were left to the people in the community.

The teacher and the pupils received valuable assistance from both the county farm agent and the home demonstration agent. The children had the opportunity to observe the results obtained from gardening scientifically and learned how to use some of the helps provided in bulletin form by the state and the national government. They established the habit of eating more vegetables. The school garden served as a connecting link between the school and the home. It led into some home gardening activities for the summer.

HOW THE RACE HAS PUT ITSELF ON RECORD

One of the pupils brought a large hornet's nest for the school science collection. During class discussion they learned that the nest is made of paper and that the process by which it is made is essentially the same as the one used for making ordinary paper. A discussion of paper brought out the fact that one of its chief uses is the keeping of records. The class thought it would be worth while to learn more about this subject.

They were particularly interested in finding how people have kept records from ancient times up to the present. Some of their questions were as follows: How is paper made? What kinds of paper are there? What are the best kinds? Why do people want to keep records? What sorts of records do they keep? What different ways have people used for the keeping of records? Why did people first make books? What did the first book look like? How did people make books before the invention of the printing press? Are there many different kinds of books? How could we keep records if we did not have paper? Do people in different countries write differently? How did people

learn to write? How did people find out how to print? What does it cost to publish a book?

Histories, readers, geographies, pamphlets, magazines, newspapers, and reference books were searched for information about the historical development of records. As a result, they learned that the development of records was somewhat as follows:

Indians and Pastoral Peoples: Notched sticks; picture writing on skins, barks, bones, leaves, stones, totem poles (northwestern Indians), etc.; knotted cords telling stories of events, bundles of sticks, wampum.

Ancient Civilization Peoples: Knotted leather thongs; Babylonian tablets, prisms, and cylinders; Egyptian papyrus, ink, ink tablets, reed brushes; wooden writing boards, wooden ink wells, hieroglyphic writing: wax tablets with Greek and Roman alphabets; clay ink wells, papyrus scrolls.

Oriental Peoples: Parchment, mold and deckle paper from linen rags; evolution of alphabet; East Indian palm leaf books; Chinese books and scrolls, seals, bamboo brushes, pens and Chinese ink; paper making.

Medieval Peoples: Parchment, the hornbook; illuminating manuscripts; tooling leather bindings; sewing and binding books; development of the printing press.

Colonial Peoples: Various types of hornbooks, quill pens; copies of Colonial records, *The New England Primer* and other books, samplers.

New Methods of Making Records: Moving Picture; Phonograph, Dictaphone, Telescribe, Television.

Many books were examined, and the arrangement, the workmanship, and the materials of which a book was made were especially noted. There was experience in the using of tables of contents and indices. A study of the evolution of the book resulted in the following outline:

EVOLUTION OF THE BOOK

I. Manuscripts

1. Forms
 - a.* The scroll
 - b.* The book with leaves
 - c.* The book with attached case cover
2. Work of the scribe or copyist
 - a.* Materials and methods
 - b.* The art of illuminating

II. The Printed Book

1. Wood block printing
2. Printing by movable type
3. Typesetting machines
 - a.* The linotype
 - b.* The monotype
4. The electrotype process
5. The modern press

The arrangement of books in the library, the mending of books, the cataloging of books and other materials, the making of a filing cabinet, and the filing of materials all became interesting activities as the study of records progressed.

The development of the printing press was studied and its tremendous influence was discussed in its cultural and commercial aspects. The uses of the typewriter and the mimeograph were investigated. The lives of Gutenberg, Caxton, and others who did much to develop printing were studied. Reports were written about the Rosetta Stone, Cleopatra's Needle, and other famous records. Various types of records were studied, such as crude painting on pottery, designs on rugs and wall hangings, and writing or printing on wall paper or some substitute for it. Some very

old books were examined. The children learned that it is important to know about the past because of its effect on the present. They found that the principal ways of doing this are by reading records of some kind and by securing information passed on from one person to another. They understood that of the two ways the first is the more reliable.

The pupils learned something about the different methods of keeping records in different countries. They became particularly interested in the records of the Egyptians, Babylonians, Chinese, and others who had made important contributions to the development of satisfactory ways of keeping records.

This unit of work was outstandingly rich in opportunities for the use of industrial arts. The children reproduced as many of the old record forms as possible. They made paper from old rags and used the following tools and mediums in making records: scrolls, clay and wax tablets, stylus, tally sticks, and knotted cords, quill pens, hornbooks, books, etc. They became interested in the mechanics of bookmaking and learned how books are printed and bound. It was found that in sewing books the machine process is cheaper but hand-sewn books are stronger. The children made various types of books, designed covers for them, and made illustrations for stories. In decorating the book covers the pupils learned to make and use blocks of wood, linoleum, and potatoes. They especially enjoyed making some illuminated manuscripts. They made designs similar to those the Indians used on their pottery and drawings similar to those found on the cave walls of prehistoric man. They published a mimeographed newspaper as a record of school activities and this activity taught them the value of accuracy in printed articles. A most attractive exhibit designed to increase appreciation of beautiful and interesting books was arranged by the pupils.

Some pupils kept diaries as records of personal activities. They ordered materials to be used in this unit of work. Written reports about various activities connected with the unit were prepared and preserved in booklet form or in files. The correct spelling of the following words and many others were results of this study: alphabet, cuneiform, diary, Egyptians, Gutenberg, hieroglyphics, hornet, library, marbling, monastery, papyrus, parchment, Phoenicians, printing press, pulp, quill pens, records, scribe, typewriter, vellum.

The pupils compared the prices of various books. Some information was secured about the prices of first editions and other rare books. They secured price lists of materials required for making and repairing books. The amounts needed were estimated and ordered.

Through this study of records the pupils learned about the historical development of records. This was so closely interwoven with history and geography that many valuable learnings in those fields resulted from this unit. The experiences the children had in the making of such things as primitive peoples' records, clay and wax tablets, stylus, and scrolls, in illuminating manuscripts, in making loose-leaf books, in folding signatures, in sewing and binding books, in caring for their library, in repairing books, and in filing materials—all have given them not only information about how these things are done, but also a world-wide view of the development of records, and have built up desirable attitudes in the selection, appreciation, and care of good books.

BIBLIOGRAPHY

BEAUTIFYING THE CLASSROOM

Bonser, Frederick G., and Mossman, Lois C. *Industrial Arts for Elementary Schools*. New York, The Macmillan Company, 1928.

- Mathias, Margaret E. *Art in the Elementary School*. New York, Charles Scribner's Sons, 1929.
- Stafford, Cora Elder, and Rucker, Pearl. *My Indian Art Book*. New York, Laidlaw Brothers, 1930.
- *My Jungle Art Book*. New York, Laidlaw Brothers, 1930.
- *The Round Table Art Book*. New York, Laidlaw Brothers, 1930.
- *My Wonderland Art Book*. New York, Laidlaw Brothers, 1930.
- Trilling, Mabel B., and Williams, Florence. *Art in Home and Clothing*. Philadelphia, J. B. Lippincott Company, 1928.

A SCHOOL GARDEN

- McGill, Janet. *The Garden of the World*. Chicago, Thomas S. Rockwell Company, 1930.
- Persing, Ellis C., and Hollinger, John A. *Elementary Science by Grades, Book Five*. New York, D. Appleton-Century Company, 1930.
- Phillips, Claude Anderson, and Wickham, Ola. *Adventuring in Young America*. New York, The Macmillan Company, 1931.
- Wells, B. W. *The Natural Gardens of North Carolina*. Chapel Hill, N. C., The University of North Carolina Press, 1932.
- Pamphlets on gardening, which may be secured from the Extension Division of North Carolina State College, Raleigh, North Carolina, or from the Agricultural Department of your state, or from the U. S. Department of Agriculture, Washington, D. C.

HOW THE RACE HAS PUT ITSELF ON RECORD

- Bonser, Frederick G., and Mossman, Lois C. *Industrial Arts in the Elementary Schools*. New York, The Macmillan Company, 1928.
- Barnes, Franklin. *Man and His Records*. Chicago, Thomas S. Rockwell Company, 1931.

- Coffman, Ramon. *The Age of Discovery*. Dansville, N. Y., F. A. Owen Publishing Company, 1927.
- *Growth of the Colonies*. Dansville, N. Y., F. A. Owen Publishing Company, 1928.
- Dopp, Katherine Elizabeth. *The Later Cave-Man*. Chicago, Rand, McNally and Company, 1906.
- Fisher, Anthony R. *This Man-Made World*. Chicago, Thomas S. Rockwell Company, 1931.
- Harper, Wilhelmina, and Hamilton, Aymer Jay. *Far-Away Hills*. New York, The Macmillan Company, 1930.
- Holbrook, Florence. *Cave, Mound, and Lake Dwellers*. Boston, D. C. Heath and Company, 1911.
- McGuire, Edna, and Phillips, Claude Anderson. *Adventuring in Young America*. New York, The Macmillan Company, 1929.
- Pennell, Mary E., and Cusack, Alice M. *Children's Own Readers, Book Six*. Boston, Ginn and Company, 1929.
- Rush, Charles E., and Winslow, Amy. *The Science of Things About Us*. Boston, Little, Brown and Company, 1926.
- Smith, E. Ehrlich, Lowe, Orton, and Simpson, I. Jewell. *Adventures in Reading*. Garden City, N. Y., Doubleday, Doran and Company, 1928.
- Staff of Lincoln School. *Curriculum Making in an Elementary School*. Boston, Ginn and Company, 1927.
- Tillinghast, L. Morton, and Colman, Edna M. *Colonial Life in America*. Danville, N. Y., F. A. Owen Publishing Company, 1928.

CHAPTER XV

LARGE UNITS OF WORK FOR THE SEVENTH GRADE

OUR NATIVE TREES

A GIRL BROUGHT some leaves for the science center. In making her report to the group, she used the wrong name for one leaf. A discussion of the correct name started an interest in learning the different kinds of trees that grow in the vicinity.

Several questions were asked: How shall we learn the names of trees? How do trees differ? In how many ways may new trees be started? What are the parts of a tree? What parts of the tree grow? How can we tell the age of a tree? Many leaves look alike; how shall we tell them apart? How shall we know the trees in winter when they do not have leaves? How many different kinds of trees grow in our community? Where do they grow? Do trees need to be fertilized and cultivated?

Reading material for this large unit of work was found in readers, general reference books, nature-study books, magazines, newspapers, government bulletins, and pamphlets of various kinds. The pupils made a collection of poems which included "Salute to the Trees," by Henry Van Dyke; "Trees," by Bliss Carman; "Shade," by Theodosia Garrison; "Trees' Feelings," by Charlotte Perkins Stetson; "Wood Grain," by John B. Tabb; "Birches," by Robert Frost; and "Trees," by Joyce Kilmer. Nature-study trips and reports of activities provided oral English experiences. The record books about trees contained poems, original

stories, and other information. Letters were written to government bureaus and other places, asking for information about trees and forests.

The following list contains some of the words the pupils used in their written work: alternate, bark, bole, branches, chinquapin, cutting, deciduous, foliage, graft, head, leaf, resemble, rootlets, roots, sap, spray, sumach, twigs.

The children found the average yearly growth of a tree and made problems about it. They determined the height of a tree by putting a stick into the ground with three feet of it above the ground, measuring its shadow on a sunny morning, and solving the problem by proportion. They compared the sizes of trees and made problems about lumber. In a nursery catalogue they found the list prices of some of their native trees.

They made a list of famous historical trees, which included: "The Royal Oak" in England, where the king hid from his enemies; "The Washington Elm" in Cambridge, where Washington took command of the American army; "The Treaty Elm" in Philadelphia, where Penn made the treaty with the Indians; "Washington's Live Oak Tree" near Wilmington, North Carolina. It is said that Washington once sat under this live oak to rest and eat his dinner, and for this reason the people of that section have long cherished it. The following story is told in the community:

"One woman who lived near the tree felt particular pride in it because of its beauty and its historical associations and declared that she would always protect it. Not long ago, when a public highway was surveyed, the line ran through the tree. Later the men who worked on the road prepared to cut the old live oak down. Snatching a gun, the woman ran to the road and dared the men to touch the tree. She told them that Washington had eaten and rested in its shade and it should not be cut down. With her gun at hand she

sat quietly day by day and watched the building of the road."

The story may or may not be true. However, the beautiful live oak is still standing and the hard surface highway curves around it. The children learned that trees have played an interesting part in many legends as well as in myths, and that in primitive England the strange worship of the Druids centered around the oak tree. Lists were made of trees for which certain places are noted, such as the redwoods of California. They learned that one generation must look ahead for the next in forest preservation because it takes a long time for a tree to grow. They also learned that they should plant trees for future use, especially holly trees and other evergreens which are so ruthlessly destroyed in preparing for the Christmas season. When Christmas came, instead of cutting down holly trees, as some people did in that locality, they took only branches, or used small pines or cedars from dense groves.

The children made a portfolio for leaf prints which they made and mounted. They made a notebook which contained pressed leaves and information about them and the trees from which they came. Racks were made to hold samples of branches from various kinds of trees. Samples of bark, pieces of lumber showing the grain, cones, berries, and other specimens were secured on field trips and mounted or arranged in a suitable way for reference. Pictures of trees and articles about them were collected and filed. Some beautiful leaves were preserved by being dipped in warm paraffin.

Drawings of trees and their parts were made for individual notebooks. In the fall the children drew leaves and painted them autumn colors. A frieze was made showing many kinds of trees. Kodak pictures were taken of interesting local trees. After the children learned to enjoy the

beauty of local trees, they were able to appreciate the trees in pictures by famous artists like Corot and Inness.

The pupils learned to recognize the native trees by their leaves, blossoms, bark, and general shape. They learned that trees should be transplanted at certain seasons; that new trees are started from cuttings and from seeds; that the age of a tree may be found by counting the number of rings on a section of the stump after the tree has been cut; that by grafting branches from different kinds of trees more than one kind of fruit may be grown on one tree; that trees require certain climatic conditions and certain soils for growth; that trees often need special care, such as spraying, watering, and cultivating, in order that they may thrive; that trees are often useful in keeping soil from washing away; and that "grain" in wood is of importance in determining its value.

Some nature-study songs about trees were learned, and often these were sung on field trips. Some of the songs were "Dance of the Autumn Leaves," "Forest Peace," "Nature's Dream," "The Tree-Maker," and "The Wind Is In the Forest."

Trees were planted in the school yard and some pupils planted them in their yards at home. The study of local trees caused the pupils to be interested in the various uses of trees. They also became interested in studying about furniture and learned which trees are used in furniture making and the location of places in the United States noted for lumbering.

The chief value of this unit lay in the children's increased understanding and appreciation of their own natural environment. They learned to recognize trees in their own neighborhood and thus added meanings to their environment. They developed some ability to evaluate different types of trees as to their appearance and the uses to which they may

be put. They learned the importance of reforestation and thought of ways in which they could help in the protection of forests. They increased their knowledge concerning the lumber industry.

A SCHOOL NEWSPAPER

The teacher secured several copies of school papers issued by various schools and put them on the reading table. The pupils read these and compared the activities in their own school with those described in the school papers. They asked why their school did not have a school paper and were told that it would be possible if they really wanted one. They began making plans to publish a newspaper.

They had many questions to ask. What kind of newspaper shall we have? How is a newspaper made? How can we find out? How shall we get the news? Who will write it? Who will correct the mistakes? Who will be the editor? The reporters? The business manager? Shall we use advertisements? Can we get a mimeograph or a hectograph? How shall we pay for the cost of our paper? How often shall we publish it? How shall we use pictures in it? What shall we call it? How many copies shall we make? Who should receive copies?

The children read in their English book the directions for making a newspaper, studied current newspapers and magazines, and discussed many of the articles read. They also read articles related to newspaper work, such as the historical development of the printing press and the making of paper and ink. Some of the pupils read, corrected, and rewrote their own contributions to the newspaper. In their desire to do good work on the paper they used their English textbook to learn about paragraphing, the topic sentence, unity, punctuation, etc.; and they consulted the dictionary to determine the correct usage of words and to make sure

that all spelling was correct. They studied newspapers and magazines to learn about form and content.

Writing articles for the newspaper made their written work more interesting. They wrote stories, news items, editorials, jokes, and poems. There was one article about health in each issue of the paper. Special additions to the science center or to the school museum were important news items. They learned through these activities that it was very important to be accurate in newspaper work. It was the policy of the pupils to print only things that were true, and they tried not to print news that would hurt the feelings of anyone.

The vocabulary used in this study included: Associated Press, files, hectograph, libel, linotype, mimeograph, news item, permanent, portfolio, reliable, reported, timely.

Records were kept of the cost of the paper, ink, hectograph, and other materials used. The approximate cost of each edition of the paper and of a single copy of each edition was worked out and kept on record. Naturally, the cost varied according to the number of copies issued and the amount of materials required. An accident which caused the pupils to buy more ink helped them to realize that in estimating the cost and deciding on the selling price a margin should be allowed for waste and accidents. The children made problems about the cost of the paper and about the per cent of cost due to waste, to the increased size of certain editions of the paper, etc. The keeping of records gave practical work in bookkeeping and auditing books. Copies of the paper were sold to the other grades at two cents each; pupils in the classroom paid one cent per copy. Additional costs were met by small charges for advertisements of special programs given by other grades and by printing a program for their own classroom. These experiences involved the use of arithmetic.

The invention of the printing press was studied and the development of printing was traced up to the present time. Old copies of newspapers were brought to school. Newspaper cartoons which had played important parts in political campaigns were found in history books and compared with those in the papers of today. Copies of some of the large daily papers were secured, and the class discussed the reasons for having these large papers. The discussion led to a review of geographical conditions which caused the growth of large cities in the United States. The discussion of interesting items in these papers helped the pupils to keep up with the current geographical and historical news. The children were especially interested in Byrd's expedition to the South Pole and the aërial mail routes planned by Lindbergh. Clippings about happenings in various countries were filed in a loose-leaf scrapbook under the name of the proper country, thus making a simple encyclopedia.

The development of methods of spreading news was studied; for example, the verbal carrying of news by a messenger, writing by means of pictures and then by signs, writing words, printing with blocks, putting news on posters, and the printing of news by means of a press run by machinery. They visited a newspaper office and observed the various activities there: preparation of copy, type casting and typesetting, stereotyping, and the rotary press. They noted the different methods of illustrating, such as woodcuts, lithographs, engravings, etchings, and the photographic process.

The pupils visited the sixth-grade room and saw what had been done in the large unit, "How the Race Has Put Itself on Record." They made a hectograph, which they used for making duplicate copies of their paper, and they made racks to care for the large newspapers. A portfolio

for keeping copies of the school paper on permanent file in the classroom was also made.

A study of the designs on magazine covers led to the drawing of an attractive heading for the front page. One cartoon or some other type of drawing was used in each issue. Sometimes a picture was put in with a block print.

Later, the pupils became interested in publishing a magazine which would contain their original stories and poems.

This newspaper proved to be a valuable unifying factor in the school. It accomplished this result by giving reports of activities from all the grades and by stimulating pride in the achievements of the pupils in school. There were many experiences that resulted in learnings in the field of English, particularly the structure of sentences and paragraphs, and the use of punctuation. The children learned how to select news items from the points of view of interest, accuracy, and good taste.

A STUDY OF BOATS

The teacher had been reading *Treasure Island* to the children. One morning she placed on the bulletin board a picture of a pirate ship and several pictures of other kinds of ships, together with some clippings about boats. After a chapter from *Treasure Island* had been read, the pupils began to ask questions about the pictures. These were answered in class discussion or referred to certain members of the class for study. Later, the children brought pictures of boats for the bulletin board, and also newspaper articles concerning ships and shipping. They read about boat-racing events and brought pictures of these to class. Soon members of the class asked if they might make a special study of boats. They thought it would be worth while to learn as much as possible about how boats have been made and how they have been used by man.

The interest of the children was shown by numerous questions. How many kinds of boats are there? What does each type look like? How have boats been improved? What kinds of boats did people use long ago? For what purpose did early peoples use their boats? Who first thought of making a sailboat? How have boats affected our history? What makes a boat go? How was the steamboat developed? How can people tell how much weight a boat can carry? What makes a boat float? How do sailors measure the speed of boats? How do they measure the depth of the sea? What is the meaning of SOS? How can ships in distress let people know where they are? What is the purpose of the sail? The keel? The rudder? How do lighthouses help sailors? How long do people make ships? What is the largest ship?

The pupils found a wealth of reading material about boats. A seventh reader contained "The Bank Fisherman," "A Bold Dream Realized," and "Seen in Porto Rico." A sixth reader contained "The First Steamboat," "A Perilous Coast," and "My Trip Up the Amazon." They found a collection of poems about ships and the sea, which included "Sea Fever," by John Masefield, and "The Wreck of the Hesperus" and "The Lighthouse," by Longfellow. Among other things, they read *The Sea Devil*, by Count Von Luckner and *Show Boat*, by Edna Ferber.

One interesting activity was a debate: "Resolved: That boats have proved more useful to man than trains."

They made many written and oral reports on the research required in answering questions that came up. They also wrote some original stories and poems about boats. Many letters were written to steamship companies asking for advertising material. Written reports were prepared and many of these were put into booklet form for permanent use.

The pupils learned to use the following words: boatswain, capstan, captain, chanteys, clipper, Columbus, cutter, Europe, Fulton, gig, harbor, keel, knot, lighthouse, lightship, log, Magellan, mate, Old Ironsides, port, radio, rudder, sail, sailor, salt, Santa Maria, storm, viking, wreck, yard.

They compared measurement terms used on land and sea and learned to change one into the other. They made and solved problems concerning distances from New York to various ports, the rates of speed of different ships, etc. They learned that charts are used to show the progress of an ocean liner, and how the record is kept.

Stories of the Vikings, Egyptians, and the Phoenicians were read; the story of Leif Ericsson was studied in detail. The children admired the bravery of the Vikings and such men as Columbus. Historic ships like the *Half Moon*, the *Santa Maria*, the *Victory*, the *Temeraire*, and the *Bon Homme Richard* were studied. The uses of ships at different periods in the world's history were considered.

The children were interested in the ways in which some people make a living on boats, and in the fact that some people use boats and lighthouses for homes. They learned the importance of having brave and dependable men for lighthouse keepers, coast guards, and officers on ships.

There were discussions of the kind of food needed on long voyages, and in this connection the need of everyone's having the right kind of food was emphasized. They were interested in the difficulties that sailors once had in keeping proper food on a voyage, and the diseases that were prevalent because of this difficulty. There was a class discussion of famous seaside health resorts, such as Virginia Beach, Atlantic Beach, and Atlantic City.

Sailors' songs were of great interest to the children and they learned to sing several of those they liked best. They also enjoyed the following phonograph selections: "Row,

Row, Row Your Boat," "Sailing," "Song of the Volga Boatmen," "Pirate Song," "Song of the Vikings," "Boat Song," and "The Sailor." They learned the "Sailor's Hornpipe" and other dances popular among sailors.

The pupils became interested in the invention of the steamboat and studied the lives of men who made discoveries that aided in the development of ships, such as Archimedes, Watt, and Fulton. In order to determine why boats float, experiments were made with floating bodies. There was a study of materials from which boats are made. A particular interest was manifested in radio and other systems of signaling used on boats.

Visits were made to boats owned by parents and friends, and information was secured from them about their boats and sea experiences. In this way the children learned about many different types of boats and obtained much interesting geographical and historical information. One retired sea captain visited the school and lectured to the children. Some of the children knew people who were in service at coast guard stations and some who were stationed on a lightship and information was secured from them. Since making ship models is a hobby of some retired sea captains, many models were available for study.

They gained a better understanding of the importance of boats in world trade and in travel. They learned how boats developed and what their importance is in history. They gained better understanding of the life of a seaman and a greater appreciation of his work. They became better acquainted with their own locality. They developed an appreciation of beautiful boats, sea pictures, and sea poems.

BIBLIOGRAPHY

OUR NATIVE TREES

- Coker, W. C., and Totten, H. R. *Trees of the Southeastern States*. Chapel Hill, N. C., The University of North Carolina Press, 1934.
- Comstock, Anna Botsford. *Handbook of Nature Study*. Ithaca, N. Y., Comstock Publishing Company, 1927.
- Curtis, Carlton C. *A Guide to the Trees*. New York, Greenberg, Inc., 1925.
- Hawksworth, Hallam. *A Year in the Wonderland of Trees*. New York, Charles Scribner's Sons, 1926.
- McFee, Inez N. *The Tree Book*. New York, Frederick A. Stokes Company, 1919.
- Mathews, F. Schuyler. *Familiar Trees and Their Leaves*. New York, D. Appleton and Company, 1923.
- Moon, Frederick Franklin. *The Book of Forestry*. New York, D. Appleton-Century Company, 1927.
- Pack, Charles Lathrop, and Gill, Tom. *Forest Facts for Schools*. New York, The Macmillan Company, 1931.
- Persing, Ellis C., and Wildman, Edward E. *Elementary Science by Grades, Book Three*. New York, D. Appleton-Century Company, 1929.
- Persing, Ellis C., and Peeples, Elizabeth K. *Elementary Science by Grades, Book Five*. New York, D. Appleton-Century Company, 1928.
- Persing, Ellis C., and Thiele, C. Louis. *Elementary Science by Grades, Book Six*. New York, D. Appleton-Century Company, 1930.
- Rogers, Julia Ellen. *Tree Guide*. Garden City, N. Y., Doubleday, Doran and Company, 1931.
- *Trees That Every Child Should Know*. New York, Grosset and Dunlap, 1909.
- *Trees Worth Knowing*. Garden City, N. Y., Doubleday, Doran and Company, 1917.

Stafford, Cora Elder, and Rucker, Pearl. *My Wonderland Art Book*. New York, Laidlaw Brothers, 1930.

A SCHOOL NEWSPAPER

Hall, A. Neely. *The Boy Craftsman*. Boston, Lothrop, Lee and Shepard Company, 1905.

Harwood, Dix. *Getting and Writing News*. New York, George H. Doran Company, 1927.

Hughes, Avah W. *Carrying the Mail*. New York, Bureau of Publications, Teachers College, Columbia University, 1933. 253 pages.

Jeschke, Harry Jewett, Potter, Milton C., and Gillet, Harry O. *Better English*. Boston, Ginn and Company, 1929.

Lyman, R. L., Johnson, Roy Ivan, and McGregor, A. Laura. *Daily Life Language Series, Book II, Book III*. Boston, Ginn and Company, 1934.

McGuire, Edna, and Phillips, Claude Anderson. *Building Our Country*. New York, The Macmillan Company, 1929.

Maxwell, Marjorie. *The Story of Books*. New York, Harper and Brothers, 1928. 79 pages.

Paul, Harry G., and Miller, W. D. *Language Goals, Eighth Year*. Chicago, Lyons and Carnahan, 1931.

Thompson, Holland, and Mee, Arthur. *The Book of Knowledge*, vol. IX, p. 3390; vol. XVII, pp. 6178-79. New York, The Grolier Society, 1926.

A STUDY OF BOATS

Adams, J. H. *Harper's Outdoor Book for Boys*, pp. 211-79. New York, Harper and Brothers, 1907.

Camp, W. C. *Book of Sports and Games*. New York, Thomas Y. Crowell Company, 1903.

Cartwright, Charles E. *The Boys' Book of Ships*. New York, E. P. Dutton and Company, 1925.

Chamberlain, J. F. *How We Travel*. New York, The Macmillan Company, 1923.

- Fisher, Anthony R. *This Man-Made World*. Chicago, Thomas S. Rockwell Company, 1931.
- Gimmage, Peter. *The Picture Book of Ships*. Pictured by Helen Craig. New York, The Macmillan Company, 1930.
- Hall, A. N. *Outdoor Boy Craftsmen*, pp. 201-17. Boston, Lothrop, Lee and Shepard Company, 1905.
- Heile, Maryanna. *The World's Moods*. Chicago, Thomas S. Rockwell Company, 1930.
- Holland, Rupert Sargent. *Historic Ships*. Philadelphia, McCrae, Smith Company, 1926.
- Petersham, Maud and Miska. *The Story Book of Transportation*. Philadelphia, John C. Winston Company, 1933.
- Stafford, Cora Elder, and Rucker, Pearl. *My Wonderland Art Book*. New York, Laidlaw Brothers, 1930.
- Yates, Raymond Francis. *Boys' Book of Model Boats*. New York, The Century Company, 1920.

CHAPTER XVI

LARGE UNITS OF WORK FOR THE EIGHTH GRADE

EARNING A LIVING IN OUR COUNTY

ONE MORNING the pupils were talking about the things they had done during the week-end. One group of children reported on a visit to a lighthouse and told about the duties of the lighthouse keeper. One pupil said he would like to be a lighthouse keeper; others felt there would be great drawbacks to this way of making a living. The discussion about the lighthouse keeper's work led to a comparison of that work with other occupations. This grew into a desire to learn more about the things people in their own county did in order to earn a living.

Some of their questions were: How can we find out all the things people do in order to make a living? Whom shall we ask? How can we get a copy of the census report on occupations in our county? Shall we try to learn something about each of the occupations? What kind of work is best for each of us? What makes people choose certain occupations?

In order to learn about the occupations in their county the pupils read pamphlets, articles in the county papers, and other material they could find pertaining to the occupations carried on within the county. They made oral and written reports on what they read and also on what they learned from interviewing citizens living in the community. Their interest in occupations in other places increased and they

had many informal discussions in which they compared occupations in their own county with those in other counties.

The poems they collected and studied about occupations included "Work," by Henry Van Dyke; "The Building of the Ship" and "The Builders," by Henry Wadsworth Longfellow; "The Heritage," by James Russell Lowell; and "For A' That and A' That," by Robert Burns.

The class made lists of occupations in colonial times, traced the development of various occupations, found that many things formerly done in most homes, such as sewing, baking, and nursing, are now in many cases special occupations. They learned that new inventions, such as airplanes, furnish new occupations and that some changes cause certain occupations to cease. They observed an illustration of this in the building of a bridge in their county which dispensed with the need of a ferry.

It was found that most of the occupations in the county are dependent on its natural resources and climatic conditions. The shoals along the coast made the lighthouse and the coast-guard stations necessary, and many men are employed in those places to do different kinds of work. On the islands and along the shore most of the people engage in some type of fishing. Boats are necessary for fishing and water transportation, and in order to have boats there must be people who build and repair them. In sections of the county which are not near the shore, farming and lumbering are the important occupations. A pictorial map was made showing various types of work within the county. There were class excursions in order that the pupils might see the different kinds of work, and individual members reported on special visits which they made to observe certain occupations.

A government laboratory near by was visited and the young students learned that many people are engaged in

scientific studies about the life and habits of sea animals. They also learned that scientific facts are useful in fishing, farming, and other occupations.

The study of occupations gave the children more respect for home-making; they had not previously thought of it as an occupation. They learned that certain occupations are best for certain people and that people may do their work in a way that will dignify it, or they may do it in a way that will degrade it. For example, a man employed in a shoe repair shop may derive pleasure from doing good work and being courteous to his customers, thus dignifying his work. If he does not enjoy it he is likely to do poor work and be disagreeable to customers, thus degrading his work and injuring his trade.

In studying the different occupations, the children noted whether any hazards are involved. The effect of the occupation on health was considered an important factor in choosing one's vocation. Fishing is disagreeable in bad weather, and fishermen often get wet, but staying out of doors makes men physically stronger than they would be if they had an indoor occupation like work in a bank.

They learned of improvements that had been made in many occupations. Before railroads were built in the section in which they live, crabbing was not an important industry, and even after the coming of railroads it was impossible to ship live crabs a long distance. After the people learned that crabs may be packed in damp seaweed and shipped in boxes to New York and other cities, crabbing became an important industry.

Famous pictures about occupations, such as "The Gleaners," "The Angelus," and "The Tapestry Weavers," were studied, and pictures were collected from magazines and other sources. The pupils also took kodak pictures of some local occupations and drew and painted pictures of others.

They made a bright-colored frieze showing many of the activities of the community.

The classroom scrapbook and individual scrapbooks were illustrated and designs made for the covers. Each pupil made a scrapbook which contained information and illustrations about the occupation which he wished to follow in life. In their books the pupils listed, in addition to the information and illustrations, (1) the qualifications necessary for success; (2) their own qualifications; (3) the advantages of the occupation; (4) the disadvantages; and (5) miscellaneous information. On some of the books designs representing local occupations were used.

The songs learned about occupations included: "Three Fishermen," "Boatman's Song," "Sailing Song," "Cl'ar the Kitchen," "Song of the Harvest Moon," "Aunt Dinah's Quilting Party," and "Song of the Shirt." "The Sailor's Hornpipe" and other folk games were learned.

Letters were written to get information about occupations. They were written to each school in the county, to some county officials, to some professional and business people in the county, to the sociology department at the state university and to the United States senator and the representative from their district. Copies of these letters and the answers received were placed in a large scrapbook made by the group. These replies were appreciated because some of them were from well known people and all of them contained interesting information. They became a part of permanent files and were made available for reference.

Some of the words used in this study are: auditor, baker, banking, barber, cabinetmaker, captain, clamming, clerking, conductor, cooking, crabbing, dredging, engineer, farming, fishing, home-making, jeweler, lawyer, lighthouse keeper, lumbering, mate, mechanic, nursing, pharmacy, postmaster,

salesman, sheriff, stenographer, storekeeper, teaching, trucking, washing, weaving.

In listing the occupations the average salaries were considered. The discussion brought up the general question of the fairness of salaries. This led to a consideration of the necessary cost of preparing for various types of work. Many other problems about local occupations were discussed.

The pupils gave talks to the high school group about some of the occupations followed in the county. These talks and an original play about occupations made a very interesting assembly program. It provided an opportunity for them to share the results of their study with other groups, thus unifying the work of the school.

Through this study the pupils learned the various occupations followed within the county and some facts about each. They gained a better understanding of the economic situation within their county and a more definite idea about their own choice of occupation. Their correspondence with business and professional people, instructors at the state university and their own United States senator and representative, helped them to realize the importance of the work of these people.

A SCHOOL BANK

One day a boy discovered he had lost some money on the playground and asked the boys and girls to help him hunt for it. When it was found and the pupils had returned to the classroom, the teacher asked how people take care of money. Various suggestions were offered, but the consensus of opinion was that a bank is usually the best place to keep money. Someone suggested that the class make a visit to a bank. After the visit they wanted a school bank which

would be conducted according to banking rules and regulations, and be of real use to them.

Several questions were asked. What kind of bank shall we have? How large shall we make it? What shall we use for a money vault? Where shall we get our money? Who will have charge of the bank? Who will keep money in it? What kind of check shall we have? Can we use our checks everywhere? Why will a bank be useful to us?

As the unit work progressed, the pupils searched for materials that would help them. They read everything they could find about banking. Most of the reading material was found in pamphlets issued by banks, in arithmetics and histories, in the daily papers, in general reference books, and in small notebooks issued as advertisements. Many oral discussions concerned the visit to the bank and plans for starting a school bank. They kept books and wrote checks and statements. Records were made of the organization of the bank, the election of officers, and the meetings which were held by the officers and stockholders. While working on this unit the pupils needed to use the following words: account, audit, balance, bill of lading, calculation, certified, charter, deposit, discount, drafts, endorse, exact, maturity, negotiable, principal, proceeds, promissory, shares, sight draft, stockholders.

An arithmetic text furnished forms for checks, notes, etc., and gave the banking terms needed. They served as general manuals for guiding most of the work required in solving the mathematical problems about banking. In addition to the actual problems involved in building the bank and keeping the records, the pupils upon their own initiative worked many banking problems in their arithmetics. They learned the banker's sixty-day method for calculating interest and other methods of computing interest. Practical sit-

uations arose in which they wrote and cashed checks, made deposit slips, and kept books and audited them.

They learned how the first bank in the United States was organized, who organized it, and how banking has developed. They became interested in Alexander Hamilton, the father of our financial system. Financial panics and their causes were discussed. They learned that the government tries to protect the public by special laws relating to banking.

New York, Chicago, and other great financial centers in the United States were located on the map and reasons for their financial importance were noted. The Federal Reserve Banks were also located on the map. Industries were considered in their relation to the banking centers.

A bank large enough for the children to enter was built in the schoolroom by the pupils. They drew plans for the bank before they began their work. They made shelves for holding supplies and windows for the cashier and the customers. They also procured a door with a lock. A small cedar chest with a lock was used as a deposit box and a ledger was bought for keeping records of deposits and money withdrawn. The children made check books, deposit slips, statement blanks, and a calendar. These were very much like those used in the bank they visited. The printing and writing on the business forms were carefully done.

The pupils were careful about handling the money in the bank and the bookkeeping was accurate. Real money was used and no difficulties resulted. Politeness as an asset to business was practised by customers and bank officers. The officers accepted their responsibility and exerted themselves to make the bank grow. They learned that banks have functions besides that of taking care of money.

The children learned that the government provides money which is durable and of a size and weight that is practical for use. They also learned that, in order to prevent counter-

feiting, the government uses special processes in making money.

The pupils saved money and planned to open accounts in the local bank during the summer. They began to inquire about the value of other community institutions, such as the court. This local study grew into an interest in the United States Treasury Department and in large banking centers.

This study was valuable in that children gained a better idea of the economic importance of banking. They began to see the bank as a powerful factor in the development of the community. The children had actual experience in banking procedures, such as depositing money, drawing it out, and writing checks. They experienced the satisfaction of ownership which comes as a result of having money deposited in a bank.

A SCHOOL MUSEUM

At the beginning of the year the teacher took specimens, pictures, and other things to the classroom. The pupils became interested and brought materials. They labeled the specimens by using either the common name or the scientific name. Then they arranged them on the shelves by families. After a few weeks so many specimens had been brought that there was not space for them in the room, and the children asked for permission to put the specimens in a vacant schoolroom and thus start a school museum.

Some questions asked were: What shall we have in our museum? Shall we keep everything that is donated? Shall we have collecting excursions? Shall we use scientific or common names? How shall we preserve specimens of sea life? Shall we arrange things according to families? Which is better for preserving small animals, alcohol or a formaldehyde solution? Which costs less? Can we stuff speci-

mens as a taxidermist does? How can we make the corners of our picture frames square?

The children read reference books, textbooks, and magazines in order to learn about the habits of the live specimens and their commercial uses. They became interested in reading popular scientific literature and enjoyed discussing such matters. Books and magazines on nature, inventions, and mechanics were very much in demand.

They made a collection of poems about nature and called it "The Science Poetry Book." It contained copies of poems and gave library references for longer poems. Some of the children learned parts of poems; for example, "To a Waterfowl," by William Cullen Bryant, and "To the Mocking Bird," by Richard Henry Wilde. Some original poems were composed by the pupils. New specimens were freely discussed. Articles about insects, animals, plants, and inventions were read outside of school and reported to the class, and many observations about plant and animal life were reported also. Written records were kept of materials in the museum. Letters were written in order to secure specimens and needed materials. Some of the words used are given here: aquarium, classification, display, fossil, formaldehyde, oxidation, preservation, relic, respiration, species, specimen, taxidermist.

The children first estimated the amount of material to be used in making tables, mounting boards, cases, picture frames, and other articles, and then made accurate measurements. A mitre box was made and used in making the picture frames true. In determining the per cent of formaldehyde needed in making a solution, the pupils had practice in percentage problems.

War relics, Indian relics, fossils, and other historic articles were lent for a time. Samples of minerals and educational exhibits were secured from various places.

The life habits of many animals were studied. When live plants and animals were taken into the museum they were kept under conditions similar to their native environment; for example, a tub which was converted into an aquarium for sea animals was filled with sea water. Some animals were stuffed and mounted so that they looked very lifelike. Necessary equipment like mounting boards, tables, and cases were made in order that specimens could be attractively displayed. On the back of framed pictures the children wrote information about them. The name of the animal or plant was given, together with a brief description of its appearance, its habits, and some facts about its commercial use. Models were made of airplanes, boats, and other things. All the materials in the museum were arranged for attractiveness and convenience.

The pupils took pride in their museum and were courteous and eager to tell visitors about the things on display. Visitors from other schools often came to see it and they made one trip as a class to visit the museum in another school. Pictures and specimens were lent to the other classrooms when they were needed for a special activity. Specimens were exchanged with other schools in various parts of the country. The class worked not only for the present but for the future, in making a permanent contribution to the school.

Collecting trips and a visit to a museum and a large biological laboratory gave them new ideas and increased their scientific knowledge. The food value of animals was discussed. Some experiments were made to determine the value of certain foods for animals.

The pupils learned the names and habits of many animals. They also began to realize that there is a wealth of scientific material around them. They learned how to keep live animals and plants for class observation.

A study of plant specimens and their native environment caused the pupils to be interested in planting shrubbery around the school building. They also became interested in beautifying their home surroundings and in making interesting personal collections according to their individual hobbies.

The greatest value obtained in this study was probably the wealth of scientific information acquired. This knowledge was useful in helping each to understand his immediate environment. In addition to this, a collection of material was assembled that will be of value to the school in the future. This material was left in a well organized form properly labeled and cataloged.

BIBLIOGRAPHY

EARNING A LIVING

- Cades, Hazel Rawson. *Jobs for Girls*. New York, Harcourt, Brace and Company, 1930.
- Davis, Dorothea H. *How the World Supports Man*. Chicago, Thomas S. Rockwell Company, 1931.
- Fry, Margaret. *Man and His Customs*. Chicago, Thomas S. Rockwell Company, 1931.
- Gowin, Enoch Burton, Wheatley, William Alonzo, and Brewer, John M. *Occupations*. Boston, Ginn and Company, 1916.
- Hill, Howard C. *Readings in Vocational Life*. Boston, Ginn and Company, 1930.
- *Vocational Civics*. Boston, Ginn and Company, 1928.
- Jackson, Bennett B., Deming, Norma H., and Bemis, Katherine I. *Opportunities of Today for Boys and Girls*. New York, D. Appleton-Century Company, 1921.
- Lyon, Leverett S. *Making a Living*. New York, The Macmillan Company, 1929.
- Pressey, Park. *A Vocational Reader*. Chicago, Rand, McNally and Company, 1916.

Rodger, Esca G. *Careers*. New York, D. Appleton-Century Company, 1928.

Ziegler, Samuel H., and Jaquette, Helen. *Choosing an Occupation*. Philadelphia, The John C. Winston Company, 1924.

A SCHOOL BANK

Ambler, Mary B. *Man and His Riches*. Chicago, Thomas S. Rockwell Company, 1931.

DeGroat-Firmin-Smith. *The Iroquois Arithmetics, Book Three*. Syracuse, N. Y., Iroquois Publishing Company.

DuPuy, William Atherton. *Money*. Boston, D. C. Heath and Company, 1927.

Hill, Howard C. *Vocational Civics*. Boston, Ginn and Company, 1928.

Holbrook, Florence. *Cave-Mound and Lake Dwellers*. Boston, D. C. Heath and Company, 1911.

Smith-Luse-Morss. *The Problem and Practice Arithmetics*. Boston, Ginn and Company.

Spencer, Paul R., Gans, Roma, and Fritchler, Lois D. *Thought-Study Readers*, Books Five and Six. Chicago, Lyons and Carnahan.

Thompson, Holland, and Mee, Arthur. *The Book of Knowledge*, vol. VII, p. 2536; vol. XV, p. 5360; vol. XVI, pp. 5679-82; vol. XVII, pp. 6361-62; and vol. XVIII, pp. 6550-52. New York, The Grolier Society, 1926.

A SCHOOL MUSEUM

Burgess, Thornton W. *The Burgess Animal Book for Children*. Boston, Little, Brown and Company, 1925.

——— *The Burgess Seashore Book for Children*. Boston, Little, Brown and Company, 1929.

Comstock, Anna Botsford. *Handbook of Nature Study*. Ithaca, N. Y., Comstock Publishing Company, 1927.

Fabre, Jean-Henri. *The Story-Book of Science*. New York, D. Appleton-Century Company, 1919.

- McMillen, Wheeler. *The Young Collector*. New York, D. Appleton-Century Company, 1930.
- Patch, Edith M. *Bird Stories*. Boston, Little, Brown and Company, 1926.
- Powers, Margaret. *The World of Insects*. Chicago, Thomas S. Rockwell Company, 1931.
- Verrill, N. H. *Boy Collector's Handbook*. New York, Robert M. McBride and Company, 1927.

PART III

OUTCOMES OF AN ACTIVITY PROGRAM

CHAPTER XVII

GENERAL OUTCOMES

ANY PROGRAM of education should be evaluated in terms of its success in fitting the individual to adjust himself to his present and future environment. The personality developed in the school should function in making the child a happy and useful member of society. The demands made upon the individual by modern civilization become increasingly more exacting. It is expected that the school, whose primary function is to help the child live successfully in his environment, will take into consideration the rapidly changing nature of this environment. In the past, education consisted largely of knowing certain facts and being able to use them quickly. Now education is thought of more in terms of the ability of the individual to adjust himself to situations as they arise. The emphasis is on ability to do things rather than on the mere acquisition of subject-matter.

The outcomes to be expected from an activity program have been given in the preceding pages; these will be summarized in this chapter. The ideas here presented are gathered from many classroom observations, talks with teachers, and talks with pupils; and the illustrations given are of actual classroom situations.

The outcomes are first listed and then discussed in detail.

OUTCOMES

1. The pupils acquire worth-while knowledge, habits, attitudes, abilities, and appreciations.

2. Provision is made for the individual differences of children.

3. The teacher grows in interest, in professional knowledge, and in ability to adjust herself and develop along with the program.

4. The school acquires some valuable equipment.

5. Patrons develop increased interest in the school.

The knowledges, habits, attitudes, abilities, and appreciations that children find useful in living successfully in their environments are mental, physical, social, and emotional. Usually some learnings of each type are involved in every learning act, with one or more types predominating. Examples of learnings that are predominantly mental are: knowledge of the history of the race, arithmetic skills, promptness, ability to solve problems, and appreciation of the contributions of past civilizations. Some learnings that are predominantly physical are: writing with a pencil, working with tools, singing, and motor skills, such as swimming and typewriting. Examples of learnings that are predominantly social are: knowledge of accepted social usage, habits of courtesy, interest in other people, and appreciation of the work of others. Learnings that are predominantly emotional are: self-control, the habit of facing reality, and the ability to get joy from work and play. When a child participates in an experience mentally, physically, socially, and emotionally, as he does in activity work, he develops his whole personality.

Subject-matter is of value to the individual in helping him solve the problems of his environment. If a child is to be successful in the future he must have experiences in meeting and solving problems in the present. Subject-matter has more value for the child when it is acquired through actual experience.

READING AND ENGLISH

Reading and English play an important part in most activities because of their importance as a way of gaining meanings. Reading and English are an important part of all units described in Part II of this book. Some units, however, provide a greater variety of experiences along this line than do others.

There are many kinds of reading experiences; the kind used in any given situation depends upon the purposes for which it is intended. A great deal of reading is done for information. For example, in the first-grade units on animals the children learned the names of animals by reading the printed words in connection with pictures. They found out who was to serve the mid-morning lunch each day by reading their names with duties assigned on the bulletin board. Each day some of the group reports, which contained information, were put on the board by the teacher and read by the class as a whole. This was the beginning of reference reading. As the children grew older and the units increased in complexity, more and more reference reading was done. In the second grade the children did a great deal of reading in science readers to find out about the characteristics and habits of plants and animals in their science collection. The third-grade units on Indian Life and Life in Holland necessitated a great deal of reference reading. Readers, story books, and geographies were searched for materials about these people. The pupils looked through magazines for pictures and clippings about birds. In the fourth grade the children found it necessary to look up information about homes in many climates. The newspapers furnished much reference reading for the fourth grade unit on transportation. The pupils began to do effective work in compiling bibliographies and filing them for

future reference. The use of readers, pamphlets, histories, geographies, and various types of reference books was essential in the development of all the units in the grammar grades. Many new sources of reference material were discovered. For example, when the county health officer learned about the fifth-grade interest in pottery, he contributed to the grade library some old copies of the *London Illustrated News*, which contained several beautifully illustrated articles on pottery. One grade studying transportation received a gift of several travel magazines from an interested visitor. Household magazines furnished information useful for the unit on beautifying the classroom, and farm magazines gave information for the school garden unit. The study of records led into a study of historical materials which would have ordinarily been beyond the interest range of the sixth grade. In the unit on boats in the seventh grade the children acquired a great deal of information about famous boats in history and how the different kinds of boats are made. In the eighth grade the children extended their knowledge of vocational opportunities in the county. Activities relating to the museum required the reading of difficult materials in order to gain needed information.

The development of the units provided increased opportunities for the improvement of skills, for growth in ability to comprehend reading materials, and for increased pleasure in reading. For example, the stories made by children in the primary grades contained many of the same words, and these stories were eagerly read over and over again, thus giving practice which resulted in increased skill. The reading was done for a purpose and thus had more meaning. Real audience situations made oral reading function for pleasure. When the first grade was studying animals, one child brought from home an animal book with pictures and a short story. He enjoyed the privilege of reading this to

the class. In the grammar grades, clippings and other special references were often contributed orally by members of the group, thus making desirable audience situations. Searching for materials developed the ability to skim and secure information rapidly.

Learnings in English came through all the units. The children composed oral and written reports about their work. Discussions were necessary for group reports, and constructive criticisms were made about these reports as they were given to the class. Practice in form, capitalization, punctuation, etc., was obtained through the work in preparing materials and putting them into permanent form.

The interest of the children in their activities insured their spontaneous participation in oral English. A visitor entering a first grade room was greeted as follows: "Come and see our rug. Look! we have got Carl weaving now."

When Charles, a second-grade child, was asked to tell about the picture he had made on the easel, he explained it as follows: "Here is a fish truck. This man has a block of ice. He will crush the ice and put it on the fish. The man with the wheelbarrow is going to get some more fish."

Leslie, another second-grade child, explained his picture as follows:

"This is a story I read yesterday. Here is a farmer in his garden. He has just caught a rabbit in the garden. He will have the rabbit for his dinner."

Margaret, another second-grade pupil, explained her story as follows:

"This is Broad Creek bridge. An airplane is flying over the bridge. The man in the car is watching the airplane. He wants to see where the airplane will land."

The occasions when visitors were in the classrooms and asked about material things collected or made by the pupils provided a natural situation that stimulated conversation.

Sharing results of their work with others through an assembly program gave the pupils opportunity for experience in talking to large groups.

The first-grade pupils found it necessary to learn to write their names so that they could label their pictures and other things. They often asked for help to write other things. Their written work was in very simple form but it was done to serve a real purpose. For example, an invitation from the first grade to the second grade was written as follows:

"Come to our party Friday afternoon.

First Grade."

The second grade labeled their science specimens and kept records of flowers they saw. They were careful to spell the names correctly. Notices were written about special sales in their store and they often copied reports of their work into booklets for the reading center.

As records of the work on Indian Life and Life in Holland were kept, and as new birds were added to their list, the children learned to spell and use correctly many new words.

An article for the school paper written by a third-grade child was as follows:

Our Bird Club

We have organized a Bird Club in our third grade. Some of the boys and girls are going to join the National Audubon Club. We are making a bird frieze. We are making a list of birds on a chart as they return from the South. We are going to learn many things about birds.

Patty.

Writing this story included the use of the title, capital letters at the beginning of sentences and for titles, periods at the close of statements, and correct sentence structure and arrangement.

The fourth-grade studies, "Homes in Many Climates" and "Transportation," required the use of many proper names. The capitalization and correct spelling of these and many other words were essential parts of their stories, written reports, outlines, and other forms of written records. An example of creative work in connection with the unit on transportation is as follows:

The Airplane

The airplanes, the airplanes are coming to town

They will circle and circle before they come down.

I got in one and went in the air,

How I could feel the wind brushing my hair.

Airplanes are very big things,

And they have two or four wings

The engines make them go,

Sometimes fast, sometimes slow.

—Leon Weeks

The fifth-grade study of aviation made use of many terms which are frequently used in daily papers, and the studies about pottery and cloth taught the children words that belong to those two ancient crafts. The correct spelling and usage of these words were developed through the stories and other forms of written work in connection with these units.

The sixth-grade unit on records developed a better understanding of the growth and development of records. This knowledge helped the children to appreciate written books, magazines, and newspapers as we have them today.

The school newspaper published by the seventh grade

gave practice in the writing of compositions, special news items, and announcements. Reading their own articles and articles written by their classmates in the paper gave pupils an opportunity to criticize and evaluate the work so that their standards would gradually improve.

Writing business letters was a part of the eighth-grade unit on "Earning a Living." The letters were written for the definite purpose of getting information about local occupations. Most of the letters were answered, and the answers gave pupils an opportunity to see examples of letters as written by professional men. They were especially interested in the letters received from their United States senator and district representative.

ARITHMETIC

Arithmetic learnings were more important in some units than in others. When arithmetic was needed in activities it had more meaning to the children because it was used in real situations. The children had practice in obtaining concepts of number and knowledge of terms used; actual experience in counting and measuring; learning combinations of numbers in addition, subtraction, multiplication, and division; actual solving of problems.

In the first grade, counting, reading numbers, measuring, learning a few simple terms, and working the simplest types of problems were the most important experiences in arithmetic. For the mid-morning lunch the children counted the number of visitors to be served, and also the number of cakes, crackers, glasses, napkins, etc., to be used in serving the lunch. In their stories about their activities, number terms frequently occurred and were read by the pupils and used in conversation. Making lists of things needed gave practice in recognition of number symbols. For example, the children listed the things needed for one table, as:

- 12 napkins
- 12 glasses
- 12 cakes
- 1 vase of flowers
- 1 pitcher
- 2 bowls
- 1 tray
- 2 candlesticks
- 1 doily

Measurement experiences came through weighing and measuring the pet rabbit, finding the dimensions of the house, windows, doors, cupboard and cabinet, and in making towels, aprons and caps. A very simple record of costs of materials gave the children experience with such terms as dollars and cents, feet and inches, and pounds. Some simple problems came up, such as finding out the number of people to be served by adding pupils and visitors; comparing the sizes of animals; and estimating the size of a house suitable for the rabbit. Very simple problems were involved in keeping their daily attendance chart.

Some new and slightly more complex learnings were gained in the second grade. The children learned to use the calendar in keeping records of the number of days and nights or weeks necessary for the growth of plants. They read dates for sales and the figures and money signs on price tags in their store. They measured the distances between flowers, the height of plants, and the dimensions of their store. The terms: cent, dime, nickel, quarter, half-dollar, and dollar, became familiar through use. Problems arose in estimating the space to be given to containers and specimens in the science unit, and in determining profits from sales in the store.

In the third grade the children had opportunity for a

wider use for dates and the terms: dollars, cents, etc. They had experience with the cost of materials used in the Dutch village; in the costs of certain birds such as the canary, love-bird, and parrot. They kept records of dates when birds were first seen, season dates for killing birds, and length of time needed for incubation of eggs. The making of a miniature Dutch village in the classroom required minute and very exact measurements. Making an Indian village on the school ground required measurements on a large scale. Contests in shooting arrows were held and these involved measuring distances arrows were shot. While the children were studying about birds, many problems came up in connection with building bird houses and a bird bath for the school yard. For example, the relative costs of various materials had to be considered. The cost of materials necessary for Indian suits was compared with the ready-made costumes. Prices of American and Dutch cheeses were compared. Problems also came up concerning the costs of bulbs and flowers.

In the fourth grade there were problems in comparing sizes of homes in various countries, in comparing amounts of time taken for different modes of travel, and in buying things for the first-aid cabinet. These problems usually involved only one step, although the pupils found it necessary to solve some two-step problems. For example, in comparing the amounts of time that Columbus and Lindbergh took to cross the ocean, both multiplication and subtraction were used.

Problems in the fifth-grade unit were usually more difficult. Two-step problems were often used, and sometimes three-step ones. Problems were concerned with differences in time and costs of the different kinds of air travel, costs of material and workmanship in pottery, and comparisons as to the prices of different kinds of cloth. These problems

were all of the kind that one is likely to meet in daily life.

In the sixth grade there were many mathematical experiences, particularly in the unit on gardening. In order not to lose money the children had to make careful estimates of costs and fix their selling prices accordingly. They had to keep informed about local prices also. There were comparisons between cost and selling price. In beautifying the classroom the pupils were spending money, and so they were concerned with getting the best values in beauty and utility for the money they spent. They made comparisons of prices of similar articles in different stores and of the store prices of articles which they made themselves.

The seventh-grade units involved some rather complex problems. In estimating the height of a tree by its shadow they learned the use of ratio. The school newspaper unit brought many problems about the cost of ink, paper, etc. The children solved problems about the per cent of cost due to waste, to the increased size of certain editions of the paper, etc. The keeping of records gave practical work in bookkeeping and auditing books. The money transactions involved in advertising, selling the papers, etc., gave practical experience in arithmetic.

The eighth-grade units on earning a living, banks, and school museum provided many experiences in arithmetic. The pupils compared the different salary levels and estimated what each salary would buy in terms of the necessities and comforts of life. The bank study brought in the use of interest and discount. Measurement was necessary in order to make the requisite equipment and arrange the articles in the museum.

SOCIAL SCIENCE

All of the units were rich in learnings in the field of social science. This type of teaching provides total learning

situations that cause the child to see geographical and historical meanings in their relationships. Even first-grade children in their study of animals had experiences that helped them to understand their immediate environment. They learned that animals live where they can get food and shelter. The mid-morning lunch unit provided social contacts that gave the children experiences in getting along with each other and developed desirable social attitudes.

In the second grade the children learned that flowers grow better in some sections of the country than in others because of climatic conditions. When they were building and running a store they became interested in finding out where the various articles in the store came from, and in this way gained information about various countries and localities. In the science unit they learned about the commercial use of furs and the early use by the Indians of shells for money. The study of the migration routes of birds and fish extended their geographical knowledge. The children enjoyed sharing their museum with others.

Important geographical and historical knowledges were acquired in the third grade through the units on peoples. The study of Indians gave the children knowledge and appreciation of early American life. They began to see the Indians as a real people with traditions, customs, and achievements and manners of their own. In their study of Holland the pupils grew in understanding of the characteristics of the Dutch people and their life. They discarded some highly colored notions of the quaint ways of the Dutch people and began to think of them in relation to other nations.

In the fourth-grade unit on Homes in Many Climates the children became familiar with the characteristic features of different countries. They learned the advantages and disadvantages of various types of houses in helping man adjust

himself to his environment. In the Transportation unit, different peoples were studied in relation to their modes of transportation. Many environmental adaptations were brought out here, such as the birch bark canoe used by the Indians and the boat made of skins, used by the Eskimos. An important learning in this study was the development of an attitude of taking sensible precautions against danger in transportation, and of helping to prevent accidents whenever possible.

All three of the fifth-grade units extended the children's knowledge of peoples in relation to their environments. The aviation study brought to light interesting historical data concerning the development of the airplane and stimulated an interest in present-day happenings, which are so largely influenced by aviation. The study of the Pottery of All Nations brought out the artistic achievements of different nations in this field. The reflection of racial characteristics in pottery work was found interesting. Since the different kinds of cloth come from many widely separated countries, a study of the origin and uses of different fabrics threw light upon the characteristics of the life of different peoples and their relationships with each other.

The sixth-grade unit on records gave the children an appreciation of what permanent records have meant to the development of civilization. They learned that it is important to know accurately about the past because of its effect upon the present. They learned that in keeping their records people used the materials at hand and that in this way an interesting variety resulted. They learned to appreciate the contributions of Caxton, Gutenberg, and others.

The school newspaper provided experiences which developed social attitudes. The children learned to coöperate with each other and to be more interested in the achievements of their fellows.

The eighth-grade study of vocations increased the children's understanding of economic conditions and gave them a better appreciation of the interdependence of people in their work. The study of banking gave them a concept of a business institution founded to serve a community.

NATURAL SCIENCE

In natural science the learnings center around gaining a better understanding of the plants and animals around us in order to develop an interest in nature and to use the natural environment to the best advantage. There is a natural urge in the child to "find out," and a study of plants and animals helps to satisfy this urge. Plants and animals are brought into the schoolroom by both children and teacher and information about them is gained by observation, talking with each other, the teacher, and others, and consulting reference books. On nature study walks plants and animals are often observed in their natural environment. The scientific information that children get usually concerns the characteristics and habits of different plants and animals. The first-grade stories on page 114 illustrate this type of information.

The first-grade unit on animals gave the children experience with several animals, which were kept in the schoolroom where the children could learn their characteristics and habits by watching them and caring for them.

In the second grade the children learned how to grow several different kinds of flowers and had a science collection which was built up throughout the year. They gained a wide range of information about many plants and animals. Stories on page 137 are results of their observations.

Through a unit on Birds in the third grade the children learned about the appearance, habits, and usefulness of many different birds. This led to the appreciation of poems

and stories about birds. The information gained was recorded in stories and read over and over again. A third-grade original story containing scientific information is given on page 150.

In the fourth-grade unit on Homes in Many Climates the children had an opportunity to learn a great deal about climatic conditions in various places and the influence of climate on the lives of people.

When the children were studying about aviation in the fifth grade they learned about the law of gravity and its importance in the use of airplanes. In the pottery study they learned to recognize the different kinds of clay and understood why each had its characteristic color. Their knowledge of the ingredients of clay was used to help them in making their pottery correctly. In the study of cloth they learned about the sources of the different kinds of cloth and the processes used in its manufacture. They applied this knowledge to the care of their clothes.

Through the school-garden unit in the sixth grade the pupils learned the use of fertilizer, the advantages of tested seeds, and the care of different kinds of soil. They learned what kinds of plants will grow in different types of soil.

Through the school-museum unit in the eighth grade the children not only gained a variety of interesting and useful knowledges, but also learned to organize and classify materials and to file information.

ART

The activity program provides an environment which stimulates the development of creative power in children. Art cannot be considered alone when discussing the part it plays in the development of large units. It was a vital part of each of the units described in Part II of this book. Practice in industrial arts was obtained in building a house, and

in making articles for serving lunch, in the first grade; in building a store and in making a science center, in the second grade; in constructing Indian and Dutch homes, in the third grade; in making models of boats, airplanes, etc., in the fourth grade; in making airplanes and pottery and in weaving cloth, in the fifth grade; in reproducing records, in the sixth grade; in publishing a school newspaper, in the seventh grade; and in building a bank and in making a school museum, in the eighth grade.

Drawing, painting, modeling, and other art experiences were begun in the first grade and continued throughout the grades. The standards for beauty of form and line were raised as the children had additional experiences.

Good pictures were used in connection with special studies. While studying about birds, "The Song of a Lark" and other pictures were used. Pictorial maps were made in grammar grades. During the study of records the children made a pictorial map showing the development of records; in connection with the study on Earning a Living in Our County, they made a map of the county and illustrated it with pictures to show the various occupations of the county.

Stories and poems were illustrated by drawings, and wall hangings were made. Friezes were made during the studies of aviation, boats, pottery, and other units. Designs were drawn for pottery, books, and other things. Tying and dyeing fabrics to make the classroom more attractive and making block prints for cover designs gave experiences in those processes.

MUSIC AND PHYSICAL EDUCATION

Experiences in music and in physical education are important for the child, and these naturally function in every unit. A song, a dance, or a game learned in connection with a unit has more meaning than when acquired as an unrelated

thing. When studying about Holland the children enjoyed doing the "Dutch Dance" and singing "In Wooden Shoes." When music and physical education are not sufficiently cared for through units of work, a special period should be provided for them in the daily program.

PROVISION FOR INDIVIDUAL DIFFERENCES

Another important outcome to be expected from an activity program is a better provision for the individual differences of children. These differences come from variations in natural ability, environment and pupil interests. Cherishing desirable differences makes for the development of interesting personalities. The activity program provides a variety of activities with achievements at different levels. Some are on a simple level for the child who needs this type of thing; others are for the child of more than average ability. Also, the leads into related activities foster a desire for a continued widening of the pupil's interests. Achievement standards are now more suitable to the age and grade-levels of the children. Formerly the standards in some subjects, such as art, were practically the same from the first grade up.

GROWTH OF THE TEACHER

Another outcome to be expected from an activity program is the growth of the teacher. This shows itself in three ways: growth in interest, in professional knowledge, and in ability to adjust herself and develop along with the program. The variety of activities prevents the teacher from getting into a rut. Her interests and information grow with those of the children. The teacher may have real creative experiences in guiding the activities of children along creative lines. Teaching in this way is a living, growing thing. To

illustrate this point some of the remarks made by teachers are given below.

"There is such a change from what I once thought was pretty."

"What should I do if I ever went to a place where I could not have activity work? I don't think I could ever be contented to teach in a formal way again."

"It has been a short year; the work has been so interesting."

"At first I thought units were hard, but now I don't see how I can teach any other way."

The teacher in an activity program grows in professional knowledge. It is not implied here that other teachers do not, but it has been observed that the felt need of a teacher for the knowledge and skill necessary to guide an activity program and the intrinsic interest of it impel her to read books, attend meetings, observe in classrooms, go to summer school, and confer with others, in order to secure the information and the skill necessary. In her case as in that of the children, interest is a powerful incentive for the acquisition of knowledge.

The teacher grows in ability to adjust herself and to develop along with the program. She must always be alert and ready to seize every opportunity for making use of the suggestions of children; she must be sensitive to their interests and needs, ready to change her plans when necessary. She needs imagination to see the possibilities of her children. The varied situations that she has to meet in the classroom should cause her to continue to grow.

ACQUISITION OF VALUABLE EQUIPMENT

Another outcome to be expected from an activity program is the acquisition by the school of some valuable equipment. This usually consists of collections of various kinds; posters

and booklets; furniture; and decorative objects. Only objects of educational value should be kept in the schools, and a suitable place should be provided in which to keep these materials.

Collections of objects of scientific and historical significance are especially valuable. These include specimens of various kinds of plants, shells, stuffed animals, objects connected with historical events, and many other things. Models of various kinds, such as homes, trains, and airplanes, are useful additions to these collections. The value of these collections is greatly increased by careful labeling and the accumulating of data. The data may be kept in indexed files, in booklets, or on posters.

Useful school furniture is often made by the children and left in school. Tables, chairs, settees, easels, and bulletin boards are often made. The need for this furniture arises in carrying out pupils' activities. Furniture made in this way has social values for the children.

Interesting decorative objects are often produced by children when they are allowed to exercise their creative abilities. Articles of this type are pottery, wall hangings, book ends, and pictures. This equipment left in the school is valuable not only for use and reference, but for comparisons in raising the standards of work.

INCREASED INTEREST OF PATRONS

Another outcome to be expected from an activity program is the increased interest of the patrons in the schools, which brings a closer relation between home and school. Parents' interests usually follow those of their children, and the activities in which the children are interested at school will be the subject of much discussion at home. The fact that parents are often called upon by the pupils and the teacher to contribute materials gives them a vital part in the build-

ing of the activity program. Programs which are developed through units of work provide opportunities for patrons to gain a better understanding of the work of the school and to participate in its activities.

SUMMARY

This chapter has been concerned with a detailed discussion of the outcomes to be expected from an activity program. The pupils acquire worth-while knowledges, habits, abilities, and appreciations through experiences suited to their ability levels. Better provisions are also made for caring for individual differences in children. The teacher grows in interest, in professional knowledge, and in ability to adjust herself and develop along with the program. The school benefits by the acquisition of valuable equipment. Finally, there is an increase in interest on the part of the patrons of the school.

CHAPTER XVIII

CASE STUDIES OF INDIVIDUAL CHILDREN

SCIENTIFIC STUDY of children is essential to a good educational program. Each child is a distinct personality, with his own special needs and problems, and provision must be made for these individual differences. This chapter shows how activity work was used to provide a favorable environment for developing personality; the following case studies are included in this chapter to show how some children's needs were met.

CASE A

Description.—This pupil was nine years and one month old, had been in school three years, and showed little evidence of mental and social development. He could not read, was timid, and was not interested in school. His attendance had been very poor, and there had been little stimulation or encouragement at home. There were six other children. The family was very poor and the mother in ill health. His health was very good, but habits of cleanliness had not been formed. The Binet-Simon Test indicated an I.Q. of 71; the teacher rated his work as very inferior.

In the fall an activity program was developed in this room. Otherwise the same general conditions existed as during the previous year: the same teacher taught about the same number of children in the same classroom.

Diagnosis.—A study of the data collected by the teacher, and the pupil's test papers, pointed to the following causes

for his difficulties: (1) low mentality, (2) formation of a habit of failure, (3) interests not developed.

Remedial Work.—The teacher necessarily made some differences in her procedure in dealing with this pupil, because of his low mentality. He was not measured by the standards set for the average child, but by standards within his range of accomplishment. The varied activities provided opportunities for him to be successful. The group recognized his ability to handle tools, and he was soon put in charge of the building of the toy shop.

Special drill periods were provided for him. Remedial work in vocabulary building was given. Much of this was incidental reading made up of the pupil's own stories, and vocabulary drills suggested by reader manuals were used. Special efforts were made to improve the pupil's comprehension in reading. As a remedial measure, plenty of interesting reading material of varying degrees of difficulty was put within his reach. An appropriate mental set was secured by connecting reading with an enjoyable experience. Some special comprehension exercises, similar to those used in reading work-books, were given to the pupil.

The teacher often engaged in friendly discussions with him concerning the activity in which he was participating. Encouragement was given whenever possible. Music, especially rhythms, was helpful in this connection.

Results.—When an activity program was begun in this room, the pupil received his first incentive to work and some definite results were achieved. After three years in school his vocabulary had consisted of not more than a dozen words; at the close of this school year he read books of beginning second-grade difficulty. His grade abilities as shown by the Gates Primary Reading Tests were 2.1 on vocabulary, 1.6 on recognition of sentences, and 2.0 on comprehension in reading, as compared with the grade abilities

of 1.0, 1.4 and 1.0, respectively, on different forms of these tests in the fall. This was an average improvement of eight months in reading ability in the seven months between tests.

At first the pupil would not talk much during the conference period. After several reports were printed about his work he became interested and would try to read the stories after the other children had gone out to play. Later on he was delighted to read in the group and talk about the work being done. As he succeeded in some things his timidity vanished. He read six books of his own accord and missed only three days after the activity work was started.

CASE B

Description.—This pupil's case was somewhat perplexing at the beginning of the school year. He was seven years and six months old and had been in the first grade the year before. He had missed only twelve days during the term. His attitude toward the teacher was very pleasant. His previous teacher reported a strong dislike in the pupil for work, a tendency to waste time, and to give up too easily. The teacher noted a lack of group consciousness and other social attitudes. His work was classed as very inferior. The Binet-Simon Intelligence Test gave him an I.Q. of 78. A health examination showed defective speech and enlarged tonsils. An investigation of his family background revealed that he received little stimulation at home. There were twelve children in the family, the mother was in poor health, and the family in poor circumstances.

This pupil was in the lower section of the first grade, in an eight-teacher elementary school. There were thirty-eight children in the room.

Diagnosis.—The causes of the pupil's difficulty were diagnosed as follows: (1) bad tonsils; (2) low mentality; (3) inadequate stimulation.

Remedial Work.—The pupil's name was given to the health officer for special attention and efforts were made to get his tonsils removed. The teacher then directed her remedial work along the lines of: (1) special attempts to stimulate and interest him; (2) developing social attitudes; (3) special methods for teaching the dull child. The teacher watched this pupil throughout the activity period and was alert to seize opportunities where she could stimulate and develop his interests. She often conferred with him in a friendly way about his needs and problems. In view of the fact that the pupil was dull, she made several adjustments in her regular mode of procedure. One of these was recognizing special standards of accomplishment for this child according to his ability rather than holding him to those of the average child. Various efforts were made to improve the pupil's vocabulary through informal conversations and the building and reading of the pupil's own stories. Special vocabulary drills and exercises were provided. Even the slightest improvement in social attitudes was recognized and encouraged.

Results.—Efforts to get his tonsils removed failed. However, the pupil showed at the close of the year a gain in social attitudes. The teacher noted that he learned to like working with a group and began to develop self-confidence. He developed new interests. His speech improved greatly and he entirely overcame his faulty enunciation. He showed a grade ability of 1.6, 2.0, and 1.3 respectively on the three forms of the Gates Reading Test. The average of 1.6 compared favorably with his average of 1.1 for last year. The teacher expressed herself as believing that the pupil's greatest gains were along the lines of social development.

CASE C

The child of six years and nine months had spent one year in the first grade of an eight-teacher elementary school. There were thirty-eight pupils in the room and she had not been promoted because she refused to work. Her attendance had been fair; she had missed twenty-four days during the year. The health officer reported that she had bad tonsils. Results of the Binet-Simon Intelligence Test indicated an I.Q. of 88.

Diagnosis.—A careful study of the pupil's achievement and intelligence test paper, together with the data collected by the teacher led to the following diagnosis of the causes of her trouble: (1) bad tonsils; (2) few satisfying experiences; (3) adverse influence in the home, in which there was a great deal of discord.

Remedial Work.—The health officer was asked to try to have the pupil's tonsils removed. The teacher visited the home and conferred with the pupil's parents. In this conference she tried to arouse the parents' interest in the pupil with a view to persuading them to have her tonsils removed and to encourage her at home.

Then the teacher set to work to develop social attitudes in the child. Frequently she talked with the child about her work and encouraged all indications of desirable social attitudes. During the activity work the teacher was alert to seize every opportunity to develop these social attitudes in the child. Often she planned to bring about situations where the child could derive satisfaction from desirable social behavior.

In attempting to combat adverse influence in the home, the teacher made a visit to the child's parents. Here she talked with the parents about their child's needs and problems, and made tactful suggestions for the improvement of

the home situation. She tried in every way to gain and hold the confidence of the parents.

Results.—By the close of the year the teacher felt the child evidenced all-around improvement. Her indifference had vanished and she was particularly interested in the activity work. She was often the leader of her group in clay work and she improved somewhat in reading. Her grade abilities as shown by the Gates Reading Test were: 1.4, 2.0, and 1.5, as compared to scores of 1.0, 1.5, and 1.0 made in the fall on vocabulary, sentence and phrase recognition, and comprehension, respectively. This was an average improvement of five months in the seven months between the tests.

CASE D

Description.—This pupil was shy and timid, but otherwise socially adjusted. She was eight years and two months old, and in the third grade. The Binet-Simon Intelligence Test indicated an I.Q. of 105, but her performance on the vocabulary test showed a decided weakness. Her health was excellent; she had never repeated a grade; and her attendance for the two preceding years in school was unusually good. The teacher reported that her work was average. The teacher taught twenty-five pupils in three grades of a two-teacher school. To some extent the child was handicapped by indifference and even slightly immoral influences at home. Her parents were poor and there was a large family of children.

Diagnosis.—The pupil's trouble seemed to be due to three things: (1) lack of self-confidence; (2) adverse influence in the home; (3) inadequate vocabulary.

Remedial Work.—The teacher guided the child into activities where she could appear to advantage before her classmates and was careful to recognize good work whenever

possible. At the first opportunity she visited the child's parents in their homes and made an effort to gain their confidence. She tried to make them see the pupil's difficulties, and strove to arouse a desire on the part of the parents to better home conditions. Special attempts were made to improve the child's vocabulary. She was encouraged to read a great deal, especially the stories made by the children themselves. Also, special vocabulary drills and exercises of many kinds were provided for her.

Results.—The teacher reported definite improvement in the pupil. She felt that the activity work had been valuable for this child, who now took great joy in the work and contributed numbers of things to the science center. She often worked in the library, trying to find information on a story about her science specimens. She tried hard to keep up with the new words used in activity work and was alert to notice a new one and suggest that it be put in the room dictionary. The stories made by the children were effective in improving the child's vocabulary, as also were comprehension exercises made by the teacher. The pupil's grade abilities as shown by the Orleans Test are as follows: reading 3.7, arithmetic computation 4.3, arithmetic reasoning 3.7, language usage 4.2, spelling 3.8, and average 3.9. Her average the previous year was 2.9 on a different form of the same test. This indicates a year's progress in the work of the grade as a whole.

CASE E

Description.—This pupil was chosen for special study because she could not read, distrusted her own abilities, and had had an impediment in her speech all her life. She was fourteen years old and in the seventh grade. Aside from the fact that nearly all of her seven sisters and brothers, together with her mother, suffered from a similar impediment,

the home background was very satisfactory. Her health was very good and there were no signs of nervousness. The Binet-Simon Test showed an I.Q. of 93. There were twenty-seven pupils in the room in which fifth, sixth, and seventh grades were taught by one teacher.

Diagnosis.—It was felt that the impediment in speech was the basis of the pupil's difficulties. This seemed to be a physical defect that could not be cured, and the child was apparently overemphasizing its importance.

Remedial Work.—Since the cause could not be removed, the teacher tried to guide the child to gain other satisfactions that would compensate for this defect. The pupil was encouraged to participate whole-heartedly in the activity work. She was especially successful in games and rhythms. The teacher used every possible opportunity to draw the pupil out and was careful never to embarrass her. Her teacher felt that imitation was probably one cause of the pupil's impediment in speech. She explained this to the pupil and endeavored to lead her to adopt a sensible and hopeful attitude toward her defect. They held many friendly conferences, during which the teacher tried to discover the child's interests and abilities and to encourage them.

The pupil's incidental reading furnished material both for vocabulary building and the development of sentence recognition. In the making of the stories there were opportunities for developing sentence sense, and the constant reading of the stories gave vocabulary and sentence drill. Special vocabulary and sentence drills and exercises were also provided for this child.

Results.—The child was helped but not cured of stammering, and she gained in confidence. This last was illustrated by the way she conducted an assembly program. She derived a great deal of pleasure and profit from a collection of pictures she was making. These pictures were accom-

panied by stories of her own making, first given orally, then written. Grade abilities as shown by the Orleans Test at the close of the year were as follows: reading 7.0, arithmetic computation 9.2, arithmetic reasoning 8.1, language 9.2, spelling 8.0, and average 8.3. Her average for the previous year was 6.4. This indicated an improvement of nearly two years.

CASE F

Description.—The pupil was timid, stubborn, and wanted to be alone. He was eight years and four months old, and had been in school three years. The teacher rated his work as average; his I.Q. was 101. His health was excellent. This pupil was a member of a group of thirty children, all of them in the second grade. This was the first year that the pupil had been in an activity situation. He was Hungarian by birth, had been in this country only a short while, and spoke English with difficulty. There were ten children in the family and his home background was fairly satisfactory.

Diagnosis.—The pupil's trouble seemed to be entirely due to the fact that he was a foreigner. He could not adjust himself to his new surroundings because he had had few experiences in common with other members of the group and lacked adequate means of communicating with them.

Remedial Work.—The teacher's first problem was to help the pupil feel at ease in his new surroundings. He was encouraged to take part in the activity work and was given small tasks he could handle successfully. His teacher gave him individual help in pronouncing hard words and explaining their meanings. He was provided with a special reading work book and interesting books of varying difficulty. In order that he might become acquainted with everyday English, the child was particularly encouraged to read the pupils' stories.

Results.—When the strangeness wore off the pupil began to take part in the activity work and seemed to enjoy it more and more as time went on. He lost his shyness and learned to work with others. He was especially interested in the pupils' own stories and his vocabulary improved rapidly. Grades (expressed in grade abilities) made on the Orleans Test were as follows: reading 4.2, arithmetic computation 4.3, arithmetic reasoning 4.5, language usage 4.0, spelling 3.5, and average 4.1. His average the previous year was 3.2. He made nine months improvement in the year.

Summary.—It will be seen from the foregoing studies that an activity program is adapted to taking care of the needs of individual children. This is true because a variety of activities are provided for, so that each child can find something to do that appeals to his present interests and develops new ones. An activity program provides different levels of achievement so that each pupil may achieve success in some measure.

BIBLIOGRAPHY

- Chadwick, Mary. *Difficulties in Child Development*. New York, The John Day Company, Inc., 1928. 411 pages.
- Crawford, Nelson Antrim, and Menninger, Karl A. *The Healthy-minded Child*. New York, Coward-McCann, Inc., 1930. 198 pages.
- Culbert, Jane F. *The Visiting Teacher at Work*. New York, The Commonwealth Fund, Division of Publications, 1930. 235 pages.
- Furfey, Paul Hanly. *The Growing Boy*. New York, The Macmillan Company, 1930. 192 pages.
- Hamilton, A. E. *Boyways*. New York, The John Day Company, Inc., 1930. 238 pages.
- Inskip, Annie Dolman. *Child Adjustment in Relation to Growth and Development*. New York, D. Appleton-Century Company, 1930. 427 pages.

- Mateer, Florence. *Just Normal Children*. New York, D. Appleton-Century Company, 1929. 294 pages.
- Morgan, John J. B. *The Psychology of the Unadjusted School Child*. New York, The Macmillan Company, 1924. 300 pages.
- Olson, Willard C. *Problem Tendencies in Children*. Minneapolis, The University of Minnesota Press, 1930. 92 pages.
- Sayles, Mary B. *The Problem Child in School*. New York, The Commonwealth Fund, Division of Publications, 1927. 288 pages.
- Thom, Douglas A. *Everyday Problems of the Everyday Child*. New York, D. Appleton-Century Company, 1932. 350 pages.
- *Normal Youth and Its Everyday Problems*. New York, D. Appleton-Century Company, 1932. 368 pages.
- Wickman, E. K. *Children's Behavior and Teachers' Attitudes*. New York, The Commonwealth Fund, Division of Publications, 1928. 247 pages.
- Zachary, Caroline B. *Personality Adjustments of School Children*. New York, Charles Scribner's Sons, 1929. 306 pages.

APPENDIX

I

A SUGGESTED LIST OF EQUIPMENT FOR CARRYING ON AN ACTIVITY PROGRAM

ALL THE EQUIPMENT listed below will not be needed to initiate an activity program. As the program develops, various materials should be added. The list is purposely made very full in order that some materials may be used when others are not available.

1. Provision made for places to work and for seating the children. Individual tables or tables for two are desirable because these permit varied groupings. One chair for each child, chairs for the reading table, and eight or ten extra chairs should be provided. Chairs made, painted, and upholstered by the children are satisfactory for the reading table.

2. Teacher's table or desk.

3. Work table or work bench.

4. Cabinet for supplies. A wooden box may be used.

5. Provision made for caring for ordinary-sized pieces of lumber, large blocks, etc. A window seat or a large, long box on casters is satisfactory.

6. One or more bookcases, preferably those that are low.

7. One or more book racks with low, slanting shelves.

8. A table covered with linoleum for clay work. The height should be such that the children may be seated comfortably and use their arms freely while working.

9. A supply cabinet in which to keep pieces of cloth that are brought by the children.

10. Four heavyweight hammers; two medium-sized saws; one keyhole saw; nails of various sizes, most of them sixpenny; a brace and two bits; one large file and two medium-sized screw-drivers.

11. Coarse sandpaper. This is usually bought in sheets 8 inches

square. It should be mounted on small blocks with tacks. Pieces of glass may be used by older children instead of sandpaper.

12. Turpentine for cleaning brushes.

13. Household paints. These may be bought at the ten-cent stores.

14. Three or four camels hair brushes and three or four stiff brushes about $1\frac{1}{2}$ inches wide.

15. Several glass jars to hold liquid paint and turpentine for cleaning brushes.

16. Two or three boxes of water colors.

17. Cold water paint. A pound of each color will probably be sufficient.

18. A few cans of high-grade enamel paint.

19. Shellac.

20. Large-sized pressed crayons in several colors.

21. Colored chalk.

22. One or two easels for painting. These may be made by the children.

23. Blank newspaper or brown kraft paper for painting and printing. It is practical to buy this in large rolls.

24. One or more printing sets, preferably with letters one inch high for the first grade.

25. Thumb tacks, carpet tacks, and upholstery tacks.

26. Rulers.

27. One pair of good scissors for cutting cloth and several pairs of small scissors.

28. Open sewing basket and a medium-sized cardboard box to hold sewing materials and completed articles.

29. A table which may be used for sewing.

30. Three or four packages of needles. Large needles should be used in the primary grades.

31. Spools of thread. Coarse thread should be used in the primary grades.

32. Several pieces of cloth of various sizes. Flimsy materials should usually be avoided.

33. A tape measure.

34. A paper of pins and a pin cushion.

35. For primary grades at least two dolls of different sizes.
36. One or two bulletin boards. These may be made of burlap, beaverboard, cork, or celotex. They should be placed on a level with the children's eyes.
37. One yardstick.
38. Two strips of oilcloth to cover the floor under and around the clay table. Newspapers may be used instead of oilcloth.
39. Large earthenware jars (three-gallon size) to contain clay. These should be covered. A large piece of burlap or an old sweater is needed also to keep the clay moist.
40. A phonograph or other musical instruments. Records with selections suitable for children, especially several kinds of rhythms.
41. Paste.
42. A dustpan, a wastebasket, two hand brushes, two small brooms, paper towels, soap, and a box or rack for storing these.
43. Two large balls for kindergarten or first grade.
44. A work table to use in serving lunch.
45. Other lunch materials: food, serving trays, napkins, and dishes. Trays made by the pupils have social values.
46. Two deep pans to use as wash tubs, a small ironing board, and an iron.
47. Materials chosen for general attractiveness and æsthetic values. Some suggestions for these are given below:

- a.* One or two vases of good form and design.
- b.* Several small vases for flowers at each table or small potted plants in winter. The children may make vases from clay.
- c.* A few good pieces of pottery.
- d.* At least one pair of artistic book ends.
- e.* One or two plaster casts. Animals are suitable subjects. Care should be taken that the casts chosen are works of art.
- f.* One or more pictures. These should be suited to the children's interests as well as of a high standard of art.

- g. Wall hangings and friezes. Some commercial textiles make desirable wall hangings. Friezes and wall hangings may be made by the children.
- h. Cut or growing flowers.

II

TYPES OF STORIES FROM A FIRST-GRADE ACTIVITY READING CHART

BELOW ARE REPRODUCED some stories from an activity reading chart. These stories were composed by the children at the close of the activity period and were selected by the children to be read from the chart.

I

We have a little rabbit.
He is gray and white.
His ears are long.
He has a short tail.
He hops.
He has a funny mouth.
He eats apples, flowers, pears,
potatoes, collards, and grass.

2

Max brought us a butterfly.
He caught him on a zinnia.
He has many colors.
The butterfly has four wings.
He can fly anywhere he wants to go.

3

We visited Mr. Mann's store.
We saw many things.
We liked the store.

We thanked him for letting us see
his things.
We want to fix our store like
Mr. Mann's.

4

We had a good time this morning.
We served lunch.
We had lemonade and cakes.
We invited Bobby to lunch.

5

Catherine cut out an apron.
She started to hem it.
Jessie made a towel.
We are going to dry the dishes
with it.

6

Jessie took both hems out of
her towel.
She finished it today.
Audrey hemmed one side and the
bottom of her apron.
Catherine finished her apron.
She is ready to serve today.
I have finished my apron all but
the straps.

7

We are making shelves to hold
our dishes.
Hawkins, William, and I went
to Mr. Lilly's old house
and got a board.
I sawed off one piece.

8

I shellacked a pitcher.
I painted a bowl and a pitcher
blue.
I am going to paint the other
pitcher yellow.

9

Jack drew a tree with some birds in it.
He drew an airplane.
Gordon drew two trucks going to Kinston
with tobacco on them.
I drew a truck with a load of peanuts.
I drew a sawmill with a man running it.
McDonald drew a truck carrying a load
of tobacco to Kinston.
He drew a bull dog.
I drew a mule snaking logs.

10

I went to Raleigh Monday with Mother
and Daddy.
I saw Santa Claus.
I went to the museum.
It is nicer than our museum.
Mother bought me an erector set.
I got a hoe and a rake.
I went to the park.
I saw squirrels, pigeons, and
a monument.

11

I gathered the neck of my doll dress.
I am going to gather the sleeves some
time today.
I will hem it tomorrow.

12

I have finished my rug.
I took it out of the frame this morning.
I am going to put it in the library.

13

Leinster and I read in the Baby Ray book.
We read about Jack's pig.
We read about the goats, too.

14

Six of us are drawing a picture of
the story of Half Chick.
We have finished the mother hen,
the chickens, the brook, the fire,
the oak tree, the king's palace
and the steeple.
We are going to work on it some more
today.

15

George, Leinster and I drew a river.
George made a bridge over the river.
There are trucks going over the bridge.
The man on the wharf is going to the
warehouse.
One boat is going to carry some fish
to the warehouse.
The other boat is towing a skiff.

16

We worked on our rug this morning.
I took out half of my side of the
rug because it was wrong.
Elsa did not work on her side because
she lost her needle.

17

Samuel nailed the hinges on the store door.
When he got them nailed he fastened the
door to the store.
William and I helped him.
We held the door for him.
The store is finished now.

18

Samuel, William and I worked on our
serving table.
We nailed the frame together.
We nailed two boards on the top.
William got one board on wrong.
Tomorrow we are going to knock it off.

19

Thomas and I worked on the bus
this morning.
We started to pull out a nail and
the hammer broke.
Samuel will take it home with him
and put a new handle on it.

20

Leon, Rufus, William and I worked on our
flower garden, this morning.
Leon and I dug the dirt.
William and Rufus hauled it.
They hauled six loads.
As soon as we get enough dirt hauled
we will plant pansies.

21

Ruby, Verdie, Janice, Rufus, Eric, and I
worked in clay this morning.

Ruby, Verdie, and Janice started a bowl.
Rufus made his pitcher all but putting
the handle on it and smoothing it.

22

We served soup for lunch today.
We cooked the soup in our room on
our hot plate.
We put rice, noodles, Irish potatoes,
tomatoes, corn, and a ham bone
in it.
We invited eight teachers and two girls
to have lunch with us.
Two that we invited did not come.
We had a good lunch.

23

We made candles today.
We melted tallow over our hot plate.
We put a piece of blue crayon in it to
color it.
We cut strings long enough for our candles.
We dipped them in the hot tallow until
they were as big as we wanted them.
We are going to make five more candles.
We are making the candles to burn on our
table when we have birthday parties.

III

A CONFERENCE ON ACTIVITY WORK

FOR THE BENEFIT of those who are interested in arranging conferences on activity work, the following material is included. This is the actual material used in arranging a conference of this kind, carrying it out, and checking results.

A. CIRCULAR LETTER
CONFERENCE ON ACTIVITY WORK

(Place)

(Date)

TO PRINCIPALS AND TEACHERS WHO ARE CONDUCTING
ACTIVITY PROGRAMS:

Dear

In preparation for the conference on Informal Work to be held in Courthouse next Saturday, March 16th, at two o'clock, please think through the following questions:

1. Has the work centered around a few big problems?
If so, how has this been done?
2. How have you been able to take care of the minimum essentials outlined in State Course of Study?
3. How has your program been financed?
4. How have you secured materials? What materials have come?
5. What kinds of paint have you found most satisfactory?
6. How have you met the problem of storage for your materials?
7. How have you met the problem of sufficient space for working?
8. How have you met the problem of noise from hammering and nailing?

Please hand to the supervisor at the beginning of the meeting one slip of paper stating your biggest problem for Activity Work, and another with a list of the advantages and disadvantages of this type of work, as you see them.

Two-minute reports will be given on the topics listed below by teachers who have been especially successful in these phases of the work:

1. Organization for Activity Work
2. Handling Stories
3. Records for Activity Work
4. Arrangement and Use of the Library
5. Mid-morning Lunch
6. Collection and Use of Science Materials
7. Financing Equipment

Principals and superintendents will be asked for opinions and suggestions based on the work in their schools and on the discussion at this meeting.

A member of the State Department of Education will be with us to make an evaluation of our program and give us suggestions for further work.

Please bring one of your best charts. Also, please bring copies of six of your activity stories.

It is evident that we shall have a most interesting conference. It will begin at two o'clock and close by three-thirty.

Cordially yours,

.....
Supervisor of Schools.

B. PROGRAM FOR JOINT CONFERENCE ON INFORMAL WORK

Carteret and Craven Counties

1. INTRODUCTION:

Definition of Terms and Scope of Activity Work
 Essentials in an Activity Program and Outcomes
 to be expected

2. SPECIAL REPORTS:

Organization of Activity Work in Classroom
 Handling Stories
 Records of Activity Work
 Use and Arrangement of the Library

Mid-morning Lunch
Collection and Use of Science Materials
Financing Equipment

3. MEETING PROBLEMS: A ROUND TABLE DISCUSSION

Scope of Activities
Minimum Essentials in Course of Study
Financing
Securing Materials
Storage for Materials
Space for Working
Controlling Noise
Other Problems Presented by Teachers

4. EVALUATION AND SUGGESTIONS

From Principals and Superintendents
From Assistant Supervisor of Elementary Education
State Department

C. SUMMARY OF PROGRAM AT CONFERENCE ON ACTIVITY WORK

The program was initiated with statements by the supervisors in charge of the program. They gave definitions of terms and described the scope of informal work, essentials of an activity program, and outcomes to be expected.

Each teacher who made a report had been asked to talk for two minutes.

The first teacher gave the plan of organization for the activity period with her beginning first-grade pupils. Pupils make plans for work, and start to work in the following groups: Tools, Sewing, Weaving, Clay, Painting, Reading, Writing, and Printing. After they work for about forty minutes the teacher signals them to stop by playing the phonograph or tapping a bell. At first pupils did not wish to stop, but now they stop at once, put up materials, sweep, dust and wash clay tables. As examples of the children's work she showed sign posts for each table.

The second teacher reported that her first-grade pupils were

especially interested in their own stories. Most of these pupils were repeaters. At first every child wanted to tell everything. Later they learned to make a good story about a particular topic. Pupils gather in groups after the cleaning period, compose a story about their work, and decide who will give it. After the stories are given the pupils decide which story they would like to read. The teacher then writes the story on the board and pupils learn to read it. Later the same story is printed and added to the chart. Pupils take great interest in rereading stories that have been given previously. The speaker displayed her stories in a frame made specially for holding them.

The third teacher reported she felt the need of checking often in her first grade. She showed sample records kept on blanks sent from the supervisor's office. This teacher thought it was practical to take notes on each child about three times a week and to write them up after school. Others felt that once a week for each child was sufficient, especially if there were over thirty in the group. One teacher explained her chart for checking up on children. The consensus of opinion was that records should not be allowed to become burdensome.

The fourth teacher reported that a visit to the Model School in a teachers college brought a realization of the inadequacy of the library in her primary room. After hearing her description of the room which she had visited the children decided to make a reading center for themselves. The lightest and most attractive spot in the room was chosen. They made a library table, bookcases with slanting shelves, orange crate chairs, rugs and book ends. The furniture was painted an attractive pale green, growing and cut flowers were added, and attractive, illustrated books were provided. Some of the stories which pupils composed were made into booklets. Stories from magazines were mounted on cardboard. Reading was greatly stimulated as a result of the new reading center.

The fifth teacher reported that she had started the mid-morning lunch in her second grade but felt at first that it could not continue long because of the financial problem. Through the efforts of the teacher, parents became interested and assumed the

responsibility of furnishing milk twice a week for the lunch. By a pencil sale pupils made enough money to provide a supply of paper cups, napkins, and crackers. The procedure for the lunch period was the same as outlined in a circular letter from the supervisor's office. She felt that some good results from this period were proper conversation while eating, correct manners, and knowledge of table service.

The sixth speaker reported on the science work in her first grade. In the fall the children began by observing and discussing preparations made by animals and people for the winter. Walks were taken and cocoons added to the science collection, which at that time consisted of fish, shells, burrs, wood, leaves, and other things. After Christmas, the children, who were already noticing signs of spring, brought a frog and frog eggs. Later a terrapin and snails were added and watched carefully, especially as to habits of eating. Pupils found stories in the library books about their specimens. The snails were of special interest now that they had become so tame that the pupils could carry them out each day and watch them eat. Following this talk there was a discussion of desirable aquariums. One principal reported that an attractive aquarium with running water could be built for a total cost of \$7.50. It was emphasized that this type of aquarium was desirable but not essential.

The seventh teacher reported that her third-grade pupils were dissatisfied with a formal program after having had informal work in the second grade the year before. The furniture was suitable for formal teaching and no funds were available for new furniture. With the cooperation of the mothers the third grade gave a party and made \$24.37. Since labor and some materials were donated, this money was sufficient to provide additional chairs and other equipment needed.

In addition to the contributions made in reports, the following points were brought out in the round table discussion of problems:

1. The best time for guiding activities into larger and more worth-while units is during the conference period.

2. No uneasiness was felt on the part of any teacher or principal as to meeting the requirements of the State Course of Study. It was felt that Oral English and Reading in this program of work were superior to that in formal situations.
3. In addition to the cost of tables and chairs, \$25.00 is adequate for putting on an Activity Program in one room.
4. In addition to buying materials, many things will be donated by parent-teacher associations and individual patrons.
5. Storage is taken care of in the following ways: separate room, window seats, cabinets, halls and closets.
6. Where space is not available in room, work can be done out of doors.
7. Problem of disturbing other teachers can be met in three ways:
 - a. Using as many isolated rooms as possible.
 - b. Teachers agree on a special time for the activity period. If activities such as hammering go on simultaneously in different rooms they will not disturb each other.
8. The teachers present reported that the greatest problems were: securing materials and finding adequate space.

The principals and superintendents present reported a deep satisfaction with the activity programs in their schools and a total lack of opposition on the part of the patrons.

An evaluation of the program was given by a member of the State Department of Education. The conference follow-up letter given below contains her evaluation and suggestions.

D. CONFERENCE FOLLOW-UP LETTER

(Place)

(Date)

Dear:

In order to receive the greatest benefit from the splendid conference which we had last Saturday we should think over the stimulating contributions made by all present. We should especially keep in mind the evaluation and suggestions given at the close of the conference. Following is a brief summary of the points brought out.

The speaker mentioned the stimulating effect of this meeting where teachers from different counties come together to work on a common problem. From her observations in these counties and the discussion, she was impressed by the fact that the children in these activity rooms were engaged in a program of work where they use their initiative and develop their imagination. She is convinced that in order to be successful it is more important to have *movable pupils* and *movable teachers* than it is to have *movable furniture*.

Her comments on the special reports were as follows:

In discussing the organization of work she stressed the point that activities should be natural instead of artificial; also that the relative importance of various activities should not be lost sight of. She raised the question as to what the teacher should do to influence the child to choose worth-while activities.

An outstanding value of the making of stories is the individual responsibility developed. What we need to work for in this connection is to develop the sentence sense so that it will function in the daily life of the child. Progress in this line should be recorded for future help in curriculum building.

In regard to records, she suggested it would be helpful to write out an activity from the beginning to end in the teacher's own words. This would aid in placing the activities in the proper grades and prevent duplication. This also would insure continuity in the child's program and show where emphasis should be placed.

As the work progresses some of the records made by children may become a part of the permanent files.

In commenting on the library report, the speaker stressed the value of providing desirable simple books the child may have missed because of lack of opportunities at an earlier age.

The health and social outcomes of the mid-morning lunch are more than we have the ability to enumerate. It should be started as soon as possible and used as often as is practical. The important point is not to bring in anything that is in any sense artificial.

She thought the collections of science materials described were good but not sufficient. Teachers and pupils should not overlook opportunities to get scientific information from their environment, especially concerning life cycles of plants and animals. Pupils should have accurate information about items in their science collections.

As an added suggestion for financing an activity program she raised the question: Could not a Children's Fair be given as a part of the Activity Program?

In closing she asked us to watch for the development of outcomes under the following four heads:

1. Physically: What has the pupil gained in the way of health habits?
2. Mentally: What knowledges, skills, and abilities has he gained?
3. Emotionally: What are his attitudes? Is he happy or glad or sad?
4. Socially: What is his appreciation of others and their work? How does he work with others?

Hoping this summary will be of value to you, I am,

Cordially yours,

.....
County Supervisor of Schools

IV

CRITERIA FOR PURPOSEFUL TEACHING IN
TERMS OF CHILD ACTIVITY

*Prepared by Mabel E. Simpson, Director of Elementary Grades
and Kindergartens, Rochester, N. Y., and included here
with her kind permission*

1. *The experience—evidences of*

A. Purpose

1. Does it merely satisfy the teacher or is it vital from the pupil's point of view?
2. Does the pupil's experience or lack of experience help him to discover the need for the new problem?
3. Do the pupils have a direct part in the formulation of the problem?
4. Is the problem clearly understood by the entire class?

B. Means of solving the problem

1. Subject-matter

- a. To what extent are pupils aware of such sources of information as excursions, laboratory experimentation, books, pictures, library equipment, etc.?
- b. To what extent are sources adapted to mental development and to what extent do they deal with life experiences of the child?
- c. To what extent is subject-matter closely related to the problem under consideration?

2. Method

- a. Do pupils have an active part in suggesting a possible method for the solution of the problem?
- b. Do pupils do reflective thinking toward the solution of the problem?
- c. Do pupils raise questions and offer suggestions?
- d. Does the problem provide for independent judgment on the part of the members of the class?

- e.* Does the experience encourage suspension of judgment?
- f.* Is provision made for further research and study?
- g.* Are pupils conscious that specific problems are only parts of a larger unit?

C. Outcomes of child activity in terms of power

1. Attitudes

- a.* Are correct attitudes toward the subject set up?
- b.* Does the spirit of thoughtful study permeate the group?
- c.* Do the pupils show a questioning attitude?
- d.* Are the pupils ready to give and to receive constructive criticism?
- e.* Do the pupils give credit to evidences of special ability among the members of the group?
- f.* Are pupils eager to carry the study of the problem further?
- g.* To what extent is provision made for further research?
- h.* Are they satisfied with their progress and the results achieved?

2. Habits

- a.* Are pupils making personal gains in independent thinking, alertness, and accuracy?
- b.* Can the pupil keep at a definite problem even when his results seem unsatisfactory?
- c.* Is the pupil sensitive to wasteful ways of working and is he making an effort to overcome them?

3. Skills: Do pupils show improvement in:

- a.* Recognition of problem
- b.* Location and selection of data
- c.* Exercise of judgment and initiative
- d.* Organization of ideas
- e.* Application of ideas to life situations

4. Knowledge
 - a. Do pupils find satisfactory solution of problem?
 - b. Do they find need for further study?
 - c. Have at least three-fourths of the class understood the major knowledge values gained from the experience?
 - d. Do pupils know where to find further information?

II. General atmosphere of the room shown through habits and attitudes of pupils

- A. Do pupils show evidence of developing personal responsibility toward:
 1. Cleanliness of clothes and body
 2. Removal of rubbers and sweaters
 3. Good posture in standing, walking, and sitting (not rigid posture)
 4. Sufficient thought to ventilation, lighting, and seating
- B. Do pupils show evidence of personal pride in appearance and care of room?
 1. Is the schoolroom the pupil's own room?
 2. Is good housekeeping due in part to the child's pride and care of the room?
 3. Are the achievements of the pupils exhibited?
 4. Are the decorations suited to the age of the pupils?
- C. Do pupils show personal responsibility toward:
 1. Keeping up the grade standard
 2. Coöperating with others for benefit of group or entire grade
 3. Sharing with teacher and other pupils self direction in matters pertaining to the organization of routine
 - a. Distribution of materials
 - b. Changing from one activity to another
- D. Is there a sympathetic attitude between pupils and teacher?
 1. Do pupils respect and have confidence in the teacher?

2. Do pupils regard the teacher as co-worker and friend?
3. Do pupils sense the teacher's fair-mindedness and good judgment?

V

RECORD FORMS

THE two following record forms have been found useful in carrying out and checking an activity program.

I. FORM FOR RECORDING LARGE UNITS

(A form for recording large units is included because records of this kind are useful as a guide to teacher and pupils in carrying on the unit, as evidence of accomplishment and as valuable reference material for herself and others.)

- I. INITIATING THE UNIT
- II. STATEMENT OF BIG PROBLEMS
- III. QUESTIONS TO BE ANSWERED
- IV. MATERIALS NEEDED FOR THE STUDY
- V. SUBJECT MATTER CONTENT
 - A. READING AND ENGLISH
 - B. SPELLING LIST
 - C. ARITHMETIC
 - D. SOCIAL SCIENCE
 - E. ART
 1. INDUSTRIAL ARTS
 2. FINE ARTS
 - F. MUSIC
 - G. GENERAL SCIENCE
 - H. HEALTH AND PHYSICAL EDUCATION
- VI. CHARACTER DEVELOPMENT
- VII. PERMANENT MATERIALS FOR FILES
- VIII. BIBLIOGRAPHIES
 - A. TEACHER'S BIBLIOGRAPHY
 - B. PUPIL'S BIBLIOGRAPHY

2. OBSERVATION BLANK

(An observation blank is included to guide the teacher in her observations when she visits other classrooms.)

Observer's name Grade observed

Teacher observed Date

Approximate time spent in room

Part of program observed

1. List the centers of interest that you observed in the room.

.....

.....

2. List any large units of work being carried on.

.....

.....

3. List activities that went on in the room while you were present.

.....

.....

4. List evidences of pupil initiative.

.....

.....

5. List evidences of pupil coöperation.

.....

.....

6. List any evidences of desirable pupil persistence.

.....

.....

7. List any evidences of pupils assuming responsibility.

.....

.....

8. List any evidences of teacher acting as a guide rather than a taskmaster.

.....

.....

.....

.....

.....

9. What was being done to raise the standard of pupil's work?
(List examples.)

.....

.....

.....

.....

10. What provision was made for pupils of different mental abilities?

.....

.....

11. List evidences that children were encouraged to experiment.

.....

.....

12. List any evidences of happiness in work.

(a) Teacher.

.....

(b) Pupils.

.....

13. Some good things I observed. (Make a list.)

.....

.....

.....

.....

14. Some things which I will try to carry out in my classroom as a result of this observation. (Make a list.)

.....

Teacher

VI

GENERAL BIBLIOGRAPHY

- Beechel, Edith E. *A Citizenship Program for Elementary Schools*. New York, Teachers College, Columbia University, 1929. 170 pages.
- Bode, Boyd H. *Fundamentals of Education*. New York, The Macmillan Company, 1928.
- Bonser, F. G., and Mossman, Lois C. *Industrial Arts for Elementary Schools*. New York, The Macmillan Company, 1923.
- Burke, Agnes, and Others. *A Conduct Curriculum for Kindergarten and First Grade*. New York, Charles Scribner's Sons, 1923.
- Burr, Samuel Engle. *An Introduction to Progressive Education*. Cincinnati, C. A. Gregory Company, 1933. 72 pages.
- Charters, W. W. *The Teaching of Ideals*. New York, The Macmillan Company, 1927. 372 pages.
- Classroom Teacher, The*, Vols. I-VI. Chicago, The Classroom Teacher, Inc., 1927.
- Cobb, Stanwood. *The New Leaven*. New York, The John Day Company, 1928. 340 pages.
- Clouser, Lucy Weller, Robinson, J. Wilma, and Neely, Dena Lois. *Educative Experiences through Activity Units*. Chicago, Lyons and Carnahan, 1932. 352 pages.
- Coleman, Satis N. *Creative Music in the Home*. New York, Lewis E. Myers and Company, 1928. 399 pages.

- Collins, Ellsworth. *Experiments with the Project Curriculum*. New York, The Macmillan Company, 1928.
- Comstock, Anna Botsford. *Handbook of Nature Study*. Ithaca, N. Y., Comstock Publishing Company, 1928.
- Curriculum Bulletin No. 5. Teaching in Grades Four, Five and Six*. Raleigh, N. C., Raleigh Public Schools, 1929.
- Curriculum Bulletin No. 6. Art Education*. Raleigh, N. C., Raleigh Public Schools, 1929.
- Curriculum-Making in an Elementary School*. Staff of Lincoln School. Boston, Ginn and Company, 1927.
- Curriculum Records of the Children's School*. Staff of National College of Education. Evanston, Ill., Bureau of Publications, 1932. 562 pages.
- Gates, Arthur I. *A Reading Vocabulary for Primary Grades*. New York, Bureau of Publications, Teachers College, Columbia University, 1926. 23 pages.
- Hill, Patty S. *A Conduct Curriculum*. New York, Charles Scribner's Sons, 1923.
- Hissong, Clyde. *The Activity Movement*. Baltimore, Md., Warwick and York, 1932. 122 pages.
- Horne, Herman Harrell. *This New Education*. New York, The Abingdon Press, 1931.
- Keelor, K. L. *Curriculum Studies in the Second Grade*. New York, Bureau of Publications, Teachers College, Columbia University, 1925.
- Kilpatrick, William H. *Foundations of Method*. New York, The Macmillan Company, 1926.
- *A Reconstructed Theory of the Educative Process*. New York, Bureau of Publications, Teachers College, Columbia University, 1931. 31 pages.
- Knox, Rose B. *School Activities and Equipment*. Boston, Houghton Mifflin Company, 1927. 386 pages.
- Mearns, Hughes. *Creative Power*. Garden City, N. Y., Doubleday, Doran and Company, Inc., 1929. 396 pages.
- Minor, Ruby. *Pupil Activities in the Elementary Grades*. Philadelphia, J. B. Lippincott Company, 1929. 260 pages.

- Porter, Martha Peck. *The Teacher in the New School*. Yonkers-on-Hudson, N. Y., World Book Company, 1930. 312 pages.
- Progressive Education* (magazine). Washington, D. C., The Progressive Education Association.
- Rugg, Harold. *Changing Civilizations in the Modern World*. Boston, Ginn and Company, 1930.
- *An Introduction to American Civilization*. Boston, Ginn and Company, 1929. 610 pages.
- and Shumaker, Ann. *The Child-Centered School*. Yonkers-on-Hudson, N. Y., World Book Company, 1928. 359 pages.
- Stevens, Marion Paine. *Activities Curriculum in the Primary Grades*. Boston, D. C. Heath and Company, 1931. 440 pages.
- Supervision and the Creative Teacher*. Fifth Yearbook of the Department of Supervisors and Directors of Instruction of the National Education Association. New York, Bureau of Publications, Teachers College, Columbia University, 1932.
- Teachers' Guide to Child Development*. California Curriculum Commission. Sacramento, Calif., State Department of Education, 1930.
- Troxell, Eleanor. *Language and Literature in the Kindergarten and Primary Grades*. New York, Charles Scribner's Sons, 1927. 264 pages.
- Twenty-third Yearbook of the National Society for the Study of Education*, Part II. Bloomington, Ill., Public School Publishing Company, 1934. 320 pages.
- Winslow, Leon L. *Elementary Industrial Arts*. New York, The Macmillan Company, 1922.

INDEX

ACTIVITIES, meaning of term, vii, 19, 67; period devoted to, 68, 69, 74, 75, 76; variety of, 84.

Animals, care of, 44; mounting of, 41, 139, 220, 222; unit on, 113-117.

Appreciation, 67, 73, 74, 78, 79, 111, 112, 114, 145, 146, 149, 153, 163, 177, 188, 201, 202.

Aquarium, 139.

Arithmetic, experiences in, 44, 78, 115, 119, 125, 130, 134, 136, 138, 144, 151, 162, 163, 165, 170, 171, 174, 179, 190, 200, 204, 218, 219, 220, 236-239.

Art, experiences in, 44, 51 ff., 78, 115, 125, 130, 131, 134, 135, 139, 145, 148, 149, 152, 163, 171, 172, 175, 176, 177, 180, 181, 190, 191, 195, 201, 206, 215, 216, 243, 244; unit on, 185-188.

Art center, Chap. iv.

Assembly, 74, 96, 121, 153, 160.

Attendance, chart, 71; pre-school, 96; unit on, 164-166.

Attitude, community, 20; teacher, 20.

Aviation, unit on, 169-173.

BANK, unit on, 217-220.

Basket making, 55, 56, 145.

Birds, listing of, 42; mounting of, 41; unit on, 149-153.

Boats, unit on, 206-209.

Books, selection and care of, 30-31.
See **Reading center**; **Library**.

Building, 118, 123-127.

Bulletin boards, 31, 68, 134.

CASE studies, Chap. xviii.

Centers of Interest, art, Chap. iv; equipment for, 22; reading, Chap. ii; science, Chap. iii; setting up, 21, 22.

Clinic, pre-school, 97-101.

Cloth, unit on, 177-181.

Community, attitude of, 20; programs for, 202, 203.

Conference period, 70, 71, 76, 77.

Criteria, 110, 117, 280-283.

Curriculum, Chap. vi.

DYEING, 56, 62.

EASEL, 54, 70.

English, 42, 44, 46-48, 67, 78, 85, 86, 114, 123, 124, 129, 130, 133, 134, 137, 138, 143, 144, 147-151, 157, 158, 161, 162, 164, 165, 169, 170, 173, 174, 179, 186, 190, 193, 194, 196, 199, 200, 203-208, 216, 217, 221, 231-236, 266-271.

Environment, 27, 88, 202.

Equipment, 63, 86: of art center, 52, 59; care of, 70. in classroom, 186-188, 216, 217, 263-266; for music, 118, 121; of reading center, 28; for science, 138, 139, 222; of science center, 39-41.

Evaluation, of art center, 59-62; of program, 23, 80; of pupil progress, 90; of reading center, 33; of science center, 45; of units, 110, 111, 117, 126, 132, 133, 149, 153, 160, 163, 164, 166, 172, 173, 177, 181, 187, 191, 192, 196, 202, 203, 206, 209, 217, 220, 223; of visiting day, 101, 102; of work, 67, 71, 77.

Excursions, 60, 132, 133, 170, 177, 179, 180, 214, 217, 220, 222.

Exhibits, 60, 96, 153, 178, 195.

FLOWERS, 44, 53, 129-133, 188.

Friezes, 51, 57, 58, 62, 131, 145, 160, 163, 175, 186, 201, 216.

GARDEN, flower, 131, 132; unit on, 189-192.

HEALTH, 67, 72, 74, 79, 89, 90, 116, 120, 123, 124, 135, 146, 164-166, 180, 181, 191, 208.

Holland, unit on, 147-149.

Homes, unit on, 157-160.

Home-school contacts, 87, 91, Chap. VII, 247.

INDIANS, 138, 143-146, 160, 161, 177, 193, 195.

LIBRARY, 30, 87, 114.

Literature. *See* English; Reading center.

Lunch, mid-morning, 68, 73, 74, 78, 79, 97, 116-123, 189.

MANNERS, 119, 120, 122.

Museum, 44, 45, 141, 220-233.

Music, 44, 72, 78, 79, 82, 96, 97, 116, 117, 120, 122, 131, 134, 139, 140, 145, 146, 149, 152, 159, 160, 163, 172, 202, 208, 209, 215, 244, 245.

NEWSPAPER, school, 96, 122, 160, 203-206.

OBSERVATION blank, 284-286.

Occupations, 148, 172, 208, 213-217.

Outcomes, of art center, 61; of case studies, Chap. XVIII; general, Chap. XVII; of daily program, 80; of reading center, 34, 35; of science center, 45, 46; of units, III, 112.

PARENTS, 20, 91, Chap. VII, 247.

Pottery, 53-55, 59, 70, 77, 118, 121, 122, 145, 173-177, 195.

Pre-school children, 94-102.

Program, arrangement of, 22, 23; daily, Chap. V, evaluation of, 23, 24; balance an activity program, Chap. I; parents and, 102, 103; pre-school, 95, 97.

Publicity, 20, 21.

READING, activity stories as aid to, 71, 120, 121, 129, 133, 143, 147, 150, 157, 158, 160, 169-171, 173, 174, 178, 186, 190, 193-195,

199, 203-207, 214, 218, 221, 231-236, 266-271. *See* Reading center; Library; Research.

Records study of, 104, 153, 192-196, 204, 205.

Research, 78.

Rhythms, 72, 79, 82, 96, 97, 116, 117, 122, 145.

Rugs, 55.

SCIENCE, experiences in, 115-117, 132, 133, 136-141, 152, 153, 177, 190, 191, 202, 214, 215, 220-223, 242-243; in curriculum, 89; specimens, 42, 43, 112, 136, 139, 141, 188.

Science center, Chap. IX, 188.

Sewing, 55, 69, 70, 126, 196.

Social Science, 62, 88, 89, 115, 124, 125, 130, 134, 138, 144, 145-149, 151, 157-164, 165, 170-172, 174, 175, 178-180, 186, 187, 189, 190, 192-196, 200, 201, 205, 209, 213-217, 219, 220, 239-242.

Store, 133, 136.

Stories, art, 62, 63; children's own, 34, 35, 114, 124, 137, 138, 147, 150, 151, 162, 266, 271; illustration of, 58; science, 46-48.

Supervision, materials for, 272-279; special points for, 24.

TEACHER, in art work, 51, 52; attitude of, 20, 86, 107, 112; contacts of with parents, 20, 21; growth of, 245, 246; guidance by, 70, 76, 88, 90, 112; observation by, 284-286; preliminary training of, 21, 89.

Tools, 56, 70.

Transportation, 144, 160-164, 169-173, 206-209.

Trees, unit on, 199-203.

UNITS of work, 97, 102, 103, Chap. VIII, 280-283.

VERSE choir, 79, 81.

Vocations, 213 ff.

W **EATHER** chart, 69.

Weaving, 57, 62, 126, 145, 178-181, 187.